HEALTH HAZARDS POSED IN THE GENERATION, HANDLING, AND DISPOSAL OF INFECTIOUS WASTES

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HEALTH HAZARDS POSED IN THE GENERATION, HANDLING, AND DISPOSAL OF INFECTIOUS WASTES

TUESDAY, AUGUST 9, 1988

House of Representatives,
Subcommittee on Regulation
and Business Opportunities,
Committee on Small Business,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2322, Rayburn House Office Building, Hon. Ron Wyden (chairman of the subcommittee) presiding.

Present: Chairman Wyden and Representative Flake.

Chairman Wyden. The subcommittee will come to order.

It is going to be a particularly busy day on the Hill, and, in fact, in about an hour there will be a markup on the medical laboratory issue that first surfaced from this subcommittee's hearings which were held last year. So, it's going to be a particularly busy morning, and we are going to ask all our witnesses to stay within the 5-minute time limit, and we will make their testimony part of the record in its entirety.

Today, the Subcommittee on Regulation and Business Opportunities opens an inquiry into a frightening and relatively new health and safety concern: The handling of infectious medical wastes.

At the subcommittee's request, the Office of Technology Assessment [OTA] has agreed to share preliminary findings of its comprehensive national study that assesses the nature, scope, and cause of this emerging public health concern.

With the help of the Office of Technology Assessment and our other witnesses, the subcommittee has concluded that:

This summer's medical waste problem is far more serious than the bloody syringes and vile specimens that have washed up on east coast beaches. These foul products are only the residue of a national waste management system that is broken and overloaded, and beginning to regurgitate what it can't keep down;

Occupational risks for health care workers and waste handlers are growing. Hundreds of thousands of these Americans are exposed to these risks on a daily basis. The OTA reports that some health care providers provide, and I quote, "minimal training programs and may be requiring workers to sign a form stating that they have been trained, in an attempt to limit any future liability to the facility;"

Experts are going to tell the subcommittee that often what is first identified as a workplace health threat shows up in the population at large; and,

At least three Federal agencies have bungled the handling of this sensitive issue.

The Centers for Disease Control has failed to recommend guidelines for waste handling procedures. In doing so, they have shown an insensitivity to the growing number of workers exposed to health risks through the handling, transporting, and storage of infectious waste.

The Environmental Protection Agency [EPA] has failed to offer a consistent definition of red bag wastes. They have failed to develop minimum standards for the handling, transportation, and disposal of the wastes. They have failed to develop performance standards for incineration, emissions, and ash disposal. They have failed, as noted by the Office of Technology Assessment, to gather the sufficient information to reassure the public, or to identify and quantify the threat posed by these wastes. The Environmental Protection Agency is specifically authorized under the Resource Conservation and Recovery Act to develop policy and set standards for managing this type of waste.

The Occupational Safety and Health Administration has not acted to protect health care and other workers from the clear danger posed by AIDS and hepatitis B. According to the Office of Technology Assessment, 300 workers alone die each year from hepatitis B and related complications. Yet, only 20 to 40 percent of our health care workers receive hepatitis B vaccinations—vaccinations that could prevent 95 percent of those 300 deaths.

In addition, there is evidence that the Office of Management and Budget has not helped in dealing with this sensitive public health issue. Last fall, the Office of Management and Budget refused to allow OSHA to increase its efforts to gather information on the health risks these wastes present to American workers.

Unfortunately, there is every indication that the problem is getting worse. OTA points out that currently 85 percent of the "wastes are incinerated onsite." OTA says that those incinerators are "primarily small, modular units that tend to be poorly operated and to not have emissions control equipment." Workers operating onsite incinerators may not be receiving adequate training and there are questions as to whether these units are operating properly. We are going to hear today from the Office of Technology Assessment and other experts that these incinerators release dioxin and furan emissions—two potent carcinogens.

OTA also reports that more and more red bag wastes will be treated and disposed of offsite. As these materials are transported greater and greater distances, this will increase health risks to the public and the "prospect for accidental exposure due to spills and possible illegal dumping or disposal of biomedical wastes." It is likely that regional facilities for the disposal of these wastes will be created and the Office of Technology Assessment notes that there will be efforts to transport some of the waste out of the country.

Throughout our hearing, experts will tell the subcommittee that what is most frightening is how little is known about this subject. The Federal agencies charged with protecting the public health don't know how well medical wastes are managed at the point of generation.

They don't know how effective incineration and autoclaving systems are—systems that are critical to the sterilization of red bag wastes—and how prone they are to problems of too low temperatures, insufficient residence time, and volume sensitivity.

The Federal agencies don't know how many incinerators are belching out dangerous fumes and whether they are operating properly, and they don't know whether the resulting ash is safe to dispose of in landfills or, as is sometimes done, in common municipal dumps and down the sewers.

A decade ago at Love Canal, our Nation saw the first serious toxic waste problems. The issues we examine today—fueled by AIDS and other new diseases—have enormous implications for the public health. It's time for the Federal Government to get serious about solving these new problems.

I think it is particularly helpful today that we can get information that begins to assess, in a comprehensive way, the scope of this problem, and looks beyond the problem occurring on our beaches. We look forward to hearing from our witnesses.

Our first witness will be the Honorable John H. Chafee, United States Senator from Rhode Island.

Senator, we welcome you. We know of your State's interest and that your time is short. We will make a copy of your prepared remarks part of the record in their entirety. Please proceed in any fashion you wish.

TESTIMONY OF HON. JOHN H. CHAFEE, A UNITED STATES SENATOR FROM THE STATE OF RHODE ISLAND, ACCOMPANIED BY JAMES O'NEIL, ATTORNEY GENERAL, STATE OF RHODE ISLAND

Senator **Chafee**. First, Mr. Wyden, I want to thank you very much as chairman of this subcommittee for the interest you've shown and for the initiative you take in arranging these hearings. I'm delighted to appear with Attorney General James O'Neil of my State of Rhode Island, who is a subsequent witness here.

I will submit my statement but just would like to make a few comments, if I might, Mr. Chairman.

First, this is a real problem. This isn't something that somebody has imagined that three hypodermic needles were washed up on some beach and there's a crisis. No; it's far more than that, as you know. It has appeared on the beaches of New Jersey, especially New York, and to some extent the beaches of New England, and, of course, on the beaches of my home State.

There we've had about 100 different pieces of medical waste, some of it hypodermic needles, some of it vials of blood, gauze dressings. It's thoroughly repulsive.

Now, people can argue over what is the health possible effects that might be carried with these hospital wastes, and some say that the sun and the sea water has diminished the possibilities of anything serious happening. People can say that, but that isn't much comfort for those who like to use the beaches. Indeed, there has been, as I understand it, in New Jersey, some vials of blood that indeed have contained the AIDS virus.

So, nobody wants to go out on these beaches with their children, and to swim in the waters, with the fear that somebody might step on a hypodermic needle, a syringe, or whatever it might be.

I think that we have a real opportunity of doing something. As I understand it, you have several pieces of legislation that you are considering, although I don't think the committee itself has come forward with a bill as yet.

I would commend to you the bill that we passed in the Senate which does several things. It provides for demonstration undertakings, grants, in connection with New York, New Jersey, and Connecticut for a tracking system of the hospital and medical units disposal of these hospital wastes.

We have some experience, of course, as you know, under the RCRA law, where we track, as it were, from cradle to grave, hazardous waste.

This is difficult. Nobody's suggesting that it's easy. I think it makes sense to start with a relatively small number of units—those that are in New York, New Jersey, and Connecticut—to get some experience and see how this works out.

The other feature of the legislation is that those who fail to abide by the paper trail—in other words, the cradle-to-grave tracking that is in the legislation—can be subject to severe criminal penalties, including jail.

Now, I think you will agree with me, Mr. Chairman, that once you have a jail sentence involved, that gets everybody's attention, and makes people extra careful.

So, I think that this problem can be solved. I think that attacking it in the limited fashion, we have to gain some experience. And, indeed, Mr. Lee Thomas from EPA has supported this legislation; likes the approach; likes the belief that if we try it with just this limited number of States, we can get somewhere.

Probably it's too late. I think we probably recognize that it's too late to do much on it this year. But certainly, we want to be prepared for next summer.

In conclusion, let me just say, Mr. Chairman, at every chance I get, I like to put in this plug, if you would: This is really symptomatic of a much bigger problem, and that is, we can no longer continue to use our oceans, our bays, our rivers, as dumps. There's a limit to what these oceans can absorb. Clearly, we've reached those limits. So, in a way, this may be a blessing in disguise. Although, as Winston Churchill said when his wife said his defeat was a blessing in disguise, it's extremely well-disguised in some instances.

But I think it's high time that we as a nation, we as a Congress, the House, the Senate, recognize we've got to end this ocean dumping of all kinds of substances. This has received the public's attention, directed their energies, focused their time and talents on doing something about a cleanup, and that is probably the best thing, if something good comes out of all this, this is probably the best thing that came out of it.

I want to thank you very much, Mr. Chairman, for your time.

[Senator Chafee's statement may be found in the appendix.]

Chairman WYDEN. Senator, thank you.

I note that the Office of Technology Assessment shares your view that what we have seen so far is simply a symptom of a much bigger problem. There were at least 2 million tons of hospital waste alone last year in the United States, according to OTA, so there is no question that we have an enormous problem on our hands. We appreciate your testimony, given the fact that your schedule is very busy. We have worked together on a lot of health matters, and I look forward to working with you again.

Senator **Chafee**. One other thing, Mr. Chairman. In the hospitals, I know you've spent a lot of time on health issues, and so you're familiar with this. Every single thing that is in the hospital now is lauded because it's disposable, and when it's disposable, it has to go somewhere. Now we're reaping the whirlwind, because we're not able to complete the cycle and dispose of it safely in the end.

Thank you very much, Mr. Chairman.

Chairman **Wyden**. Senator, thank you, and I look forward to working with you.

Our next panel will be Kathy Wagner, Ph.D., the Office of Technology Assessment, accompanied by Howard Levenson, Ph.D., at the Office of Technology Assessment.

Dr. Wagner and Dr. Levenson, first let me say thank you. You all have moved very expeditiously to prepare this information for the subcommittee, and I'm very appreciative.

It is the practice of our subcommittee to swear all our witnesses today. Do either of you have any objection to being sworn?

Dr. **Wagner**. No.

Dr. **Levenson**. No.

Chairman **Wyden**. Please rise and raise your right hand.

[Witnesses sworn.]

Chairman **Wyden**. We also afford the witnesses before the subcommittee the opportunity for counsel. Do either of you desire to have counsel today?

Dr. **Wagner**. No.

Chairman **Wyden**. We thank you again and recognize that OTA has a very full platter of scientific issues that the agency's working on, and we do appreciate OTA's quick response.

We will make your prepared remarks part of the record in their entirety. If you could highlight your principal concerns on the basis of what you have found to date, that would be very helpful.

TESTIMONY OF KATHRYN D. WAGNER, Ph.D., ANALYST, OFFICE OF TECHNOLOGY ASSESSMENT, ACCOMPANIED BY HOWARD LEVENSON, Ph.D., PROJECT DIRECTOR, OTA

Dr. **Wagner**. Good morning. Thank you for allowing us the opportunity to testify.

I am Kathy Wagner, an analyst with the Office of Technology Assessment. I am accompanied by Howard Levenson, who is the project director of OTA's investigation of municipal solid waste management issues.

Much of my testimony today is drawn from OTA's ongoing evaluation of medical waste management. It is part of the larger OTA assessment on municipal solid waste management to be completed early next year.

Clearly, as the media reports daily, there are problems associated with the disposal of medical wastes and the issue is a serious public concern. There are at least four obvious and important questions.

1. Why are these waste disposal problems becoming more prevalent?

2. What is the exact nature and extent of these problems?

3. What authority exists to deal with the problems and how effectively is it being exercised?

4. What else can be done about the problems?

Complete answers to all of these questions are not available. Sufficient information does exist, however, to characterize the problems, discuss existing management efforts, and identify policy options. I will address these questions today based on OTA's preliminary—and I do need to emphasize preliminary—assessment of medical waste management.

As both Chairman Wyden and Senator Chafee indicated, the problems certainly do not begin with the beach closings due to washups of illegally dumped medical waste or with children playing with vials of contaminated blood disposed of in dumpsters outside medical offices, or with warehouses full of abandoned medical wastes. These are all legitimate sources of public concern, but they are symptoms of a deeper problem of inconsistency, confusion, and a lack of coordination both at and between every level of management—Federal, State, local, and generator—that is, hospitals, laboratories, and other sources—responsible for managing these wastes.

To more adequately address these problems, a comprehensive approach to managing medical waste can be taken. Problems may in part be increasing because some operators of municipal landfills and incinerators are more frequently banning or refusing to take any medical waste with suspected infectious waste material in it due to their liability concerns and worker safety considerations.

In addition, some States and localities have considered or enacted bans or moratoriums on hospital waste incinerators. It is in this general context that the problems noted in daily media reports must be placed. They are part of the bigger bind many hospitals and other medical facilities across the country find themselves in as they attempt to safely manage their waste.

I would like to briefly discuss three primary areas of concern regarding the management of medical wastes.

First, the nature of public concern, and potential health, and environmental risks from these wastes.

Second, the implications, for waste treatment and its costs, of an uncertain and inconsistent regulatory climate.

Finally, third, future trends in the management of medical wastes resulting from two tendencies in State—and possible Federal—regulation of these wastes.

For this first area of public concern, it appears that potential occupational risk, that is, for health care workers, waste handlers, and others associated with the handling and proper disposal of these wastes, may be as important as, or perhaps more serious than, possible risks posed to the general public.

Public concern is both about the degree of human health and environmental risks from these wastes and the esthetic problems they create. That is, whatever determinations are made about the degree of health and environmental risks posed by environmental wastes, the public still does not want to see the waste on their beaches.

The second area of concern over an uncertain and inconsistent regulatory climate is that it complicates the development of adequate medical waste management systems. No Federal standards exist which comprehensively address the handling, transportation, treatment, and disposal of biomedical wastes. The agency with the most comprehensive authority to provide Federal leadership on this issue is the Environmental Protection Agency. EPA has authority under the Resource Conservation and Recovery Act to comprehensively regulate the management of medical waste. Its regulations would apply to public and private facilities of all types. To date, however, EPA and several Federal authorities, including the Centers for Disease Control and the Occupational Health and Safety Administration, have only issued recommendations for medical waste management, and important variation exists even between some of these recommendations.

Without clear and consistent Federal guidance, States and localities have been left on their own to develop regulatory programs. Inconsistencies also exist here, both among the States and between local requirements and those of a State, leaving hospitals and other generators of medical wastes with confusing and inconsistent guidance on how best to manage their waste.

A third area of concern is that two regulatory tendencies by States are driving and complicating medical waste management further. One regulatory tendency is toward defining greater quantities of medical wastes as potentially infectious, and the other tendency is toward tightening controls over incineration and other disposal options.

The definitional issue could become more important due to special cost and handling requirements as more waste is treated offsite. Given that approximately 67 percent of U.S. hospitals have onsite incinerators—there is a typo that wasn't caught in the written testimony, that 85 percent of all hospital waste is incinerated, which is not known for sure—this may become important, as more treatment is likely to move offsite.

The likely implications of these general regulatory trends are that onsite incineration may become a less viable disposable option due to cost and feasibility of retrofitting existing small incinerators, and the use of large offsite regional treatment facilities is likely to increase. This, in turn, will involve more transportation of these wastes and a likely increase in public environmental exposure due to accidental spills.

To best address issues associated with these trends, at least two types of policy activities are relevant. First, further development and enforcement of standard operating procedures by hospitals and other medical waste generators for the management of these wastes.

Second, further clarification and coordination of regulatory programs at the local, State, and Federal levels of government. In particular, the desirability of further Federal involvement warrants discussion given the increase of public concern over the management of medical waste, the increase level of local and State regulatory activity which has led to nationwide variation in the treatment of these wastes and the current absence of a comprehensive Federal policy.

There are a number of potential areas for which the Federal Government could usefully clarify its policies regarding medical waste, and I will close by noting five of these.

One is the designation of a lead authority, presumably EPA, to clarify the Federal definition, classification, and regulation of medical waste.

Second, the establishment of emission standards and ash regulations for medical waste incinerators, autoclaving, and landfilling performance, and possibly operator training regulations.

Third, the establishment of handling, storage, and transportation regulations to ensure worker safety.

Four, establishment of other measures such as manifest systems to help ensure environmentally sound disposal.

And, fifth, the promotion of research and data analysis on medical waste practices.

Many of these issues could be addressed under RCRA's current authority, or could be clarified as part of the RCRA reauthorization process. Other relevant statutes are the Occupational Safety and Health Act, the Clean Air Act, and possibly the Toxic Substance Control Act.

One critical need, which is readily apparent, is the need for more information on the risk posed by these wastes and on their actual management, and for more research on alternative treatment technologies and management techniques. At a minimum, OTA's preliminary assessment of the status of medical waste management practices in the United States today indicates that to adequately address the public's growing concern over the management of these wastes, policymakers will need to address these issues expediently.

At this time, I would be happy to address any questions you may have. Again, thank you for the opportunity to testify today.

[Dr. Wagner's statement may be found in the appendix.]

Chairman WYDEN. Doctor, thank you, and thank you for the fine job that you all have done.

I will have some questions in a moment, but let me first recognize for any opening statement, our friend, the gentleman from New York. If you would like to make an opening statement, we welcome you this morning.

Mr. FLAKE. Thank you very much, Mr. Chairman.

I ask unanimous consent to revise and extend my remarks.

Chairman WYDEN. Without objection.

Mr. FLAKE. Good morning, Mr. Chairman.

Thank you for conducting this hearing. This issue of toxic waste disposal is important not only to the citizens of our country but to the entire world.

We have finally reached a point after centuries of a long binge where our environment has begun to crack, and it can no longer take the abuse of our callous disregard for its well-being.

We must stop destroying our natural resources before we reach a point of no return which, unfortunately, will result in the demise of all forms of life on earth.

We cannot continue to deplete our energy resources; sit idly by while the forests are being destroyed by acid rain; continue to contaminate the soil and ground water by disposing of toxic wastes improperly; or allowing our oceans and its inhabitants to be killed by the pollutants that continually are being dumped in our oceans.

As a member of this subcommittee, I am pleased to be a participant in this hearing, which is the first of a series of hearings to be held by the subcommittee. The purpose of this hearing is to determine the threat to the public posed by infectious wastes, how infectious wastes are harming the environment, and whether handling these waste products poses health hazards for the workers.

We will also examine alternatives to ocean dumping, the kind of materials used for containers and packaging, incineration, and the use of landfills.

I am personally dismayed as this problem has had serious consequences and effects for my own district. We are aware that the pollution that has been evidenced throughout the eastern seaboard, especially New York City—Rockaway Beach, which is a part of my district, was closed periodically during the month of July, obviously, causing an economic impact in a negative way. Rangers at a park, which is in my district, discovered discarded syringes that had washed up on the shore. At that time, more than 3,000 people were ready to go to the beach for swimming. However, they were not allowed to do so.

The beach closings have a dramatic effect on all of the people in the community and for the city. I believe that it is time for us to deal with the reality that we are causing serious problems for our seashore.

Mr. Chairman, I ask permission that the rest of my statement be included in the record in the interest of time, and at this time, yield back the balance of my time.

[Mr. Flake's opening statement may be found in the appendix.]

Chairman WYDEN. I want to thank my friend and colleague. I know of his strong interest in public health matters and the importance of this issue to his district. I will be working closely with the gentleman from New York in dealing with this matter.

Doctor, let me begin, if I might, with you. I think one of the most frightening things about this whole problem is the lack of coordination between the various Federal agencies.

At this point, is there any effort on the part of the Environmental Protection Agency, OSHA, the Centers for Disease Control, to sit down and as part of an agreement by the agencies, put in place a plan to deal with this?

Dr. WAGNER. Last November, there was a meeting that EPA convened to discuss some of these issues. To my knowledge, nothing has resulted from that other than a written summary of what was discussed at the meeting.

Clearly, there's some deference to each of the agencies trying to attack the problem somewhat independently. OSHA has a rulemaking pending. The EPA has indicated that they want to initiate some sort of education program on the issue. And CDC is trying to clarify some of the guidelines. But as far as I know, there is not any sort of formal or informal coordination going on between these authorities.

Chairman **Wyden**. So, there is no coordinated national plan as of today to deal with this?

Dr. **Wagner**. No.

Chairman **Wyden**. As I understand it, the only things that the individual agencies have done are of a voluntary nature.

Dr. **Wagner**. Yes; the recommendations. There are no regulations.

Chairman **Wyden**. In your opinion, will the volume of medical waste grow considerably each year?

Dr. **Wagner**. In general, Americans are producing more waste of all types, and that is certainly true of the hospitals. One problem is that we don't have a lot of extensive and reliable data on generation figures for any waste type, and that's certainly true of hospital waste. There have been some surveys done. Surveys that have occurred across the Nation in different localities have indicated that a few years ago we were generating an average of about 14 pounds per bed per day waste in hospitals—this would be all types of medical waste.

Today, those estimates seem to be a little higher, more around 17 pounds or more. As Senator Chafee noted, hospitals are using more disposable types of items.

Chairman **Wyden**. That is per bed, isn't it?

Dr. **Wagner**. Yes; that's an estimate.

Chairman **Wyden**. So there are 17 pounds per bed of medical waste generated per day in the United States.

Dr. **Wagner**. Right. That would include both what is usually classified in an infectious category, and other categories of waste, such as bedding and cafeteria waste.

Chairman **Wyden**. What do you think is behind the failure to come up with a consistent policy to deal with waste of this magnitude?

For the life of me I can't figure out why these agencies haven't sat down and agreed on a plan—a coordinated plan—to deal with biomedical waste and have implemented it by now.

What's behind their failure to do so?

Dr. **Wagner**. I'm sure I can't answer that definitively. But it is curious that 12 years after the passage of the Resource Conservation and Recovery Act and 8 years after the Environmental Protection Agency decided not to issue regulations in this area, because they felt there wasn't sufficient information to determine whether the risks from this type of waste were significant enough to justify Federal rulemaking, there has not been a research effort to confirm this assumption. In any case, a reading of RCRA doesn't necessarily require that a hazard be demonstrated, only that there is the potential for it.

So, it's not clear why there isn't a comprehensive approach being taken here.

It is true that the Environmental Protection Agency has been very preoccupied in the last decade with trying to regulate hazardous waste and now is focusing more on solid waste management as well. Yet, of course, this is not an excuse for anything to fall between the cracks. But as Congress has also focused attention on other wastes, the Agency has too.

Chairman **Wyden**. Because there is this lack of a coordinated national plan for dealing with the problem, you and others have said the situation is essentially left to the States.

Dr. **Wagner**. Right.

Chairman **Wyden**. And there is this hodgepodge of State rules and conflicts between jurisdictions and things of this nature.

Has the Environmental Protection Agency ever evaluated these different State programs and State medical waste disposal programs?

Dr. **Wagner**. No; not to my knowledge.

The Council of State Governments did a survey earlier this year that was an attempt to just get a handle on what types of regulatory programs are out there and found most of them are in a state of flux. At least half the States that have programs are considering changes to them. So, it's a bit difficult to get a handle on State programs, but to my knowledge, the Environmental Protection Agency has not made such an effort.

Chairman **Wyden**. Given the fact that is the primary defense for the problem we now have, shouldn't the Environmental Protection Agency have already completed an assessment of the State rules and regulations?

Dr. **Wagner**. Their understanding is that to justify rulemaking they would want that information. Given that they haven't gathered it, it is confusing why they haven't——

Chairman **Wyden**. I do not want to put you in a difficult situation. But for the life of me, I can't figure out, at the very least, if the Federal Government's going to say it's a State matter, why the Federal agency, particularly the Environmental Protection Agency, wouldn't, at the very least, evaluate what the States are doing and find the same kinds of problems that you are addressing.

EPA did issue some voluntary guidelines on the disposal of medical waste.

Dr. **Wagner**. Right.

Chairman **Wyden**. In your opinion, is this adequate, given the magnitude of the problem?

Dr. **Wagner**. Given our preliminary assessment—we haven't made any final determinations on that matter—the recommendations are not comprehensive. If you take an issue like transportation and handling of waste, the guidelines are pretty much limited to addressing the movement of waste onsite. Offsite transportation, such as a tracking system is not addressed. So, there are limitations to the recommendations that are there.

There are also still some important inconsistencies with the CDC guidelines for how these materials should be handled onsite, which adds to the confusion. It is not at all clear how well these guidelines are being followed. We don't have anything beyond anecdotal information, which is not very comforting.

Chairman **Wyden**. Haven't you been told by the States, Dr. Wagner, that these voluntary guidelines from the Environmental Protection Agency are insufficient in terms of providing guidance to the States?

Dr. **Wagner**. It's certainly true that many States have opted to go beyond them to put standards in force and go beyond a recommendation to try and ensure that the wastes are handled properly.

Chairman WYDEN. Let me ask you a few questions with respect to incineration, because of the role that they play in dealing with medical wastes.

You did state in your testimony that currently, 70 percent of the wastes are treated onsite, and that many of those incinerators are often poorly operated.

Dr. WAGNER. Right.

Chairman WYDEN. Do we know at this point which incinerators are run well, and which incinerators are run poorly?

Dr. WAGNER. Again, we are limited to anecdotal information on this. There has not been a complete study of these incinerators and the problems associated with them. The studies we do have indicate that there may be some problems of emissions of certain pollutants of concern, which can be on the order of one or two magnitudes higher than they are for, say, municipal incinerators.

Chairman WYDEN. But for a citizen right now, it's not possible to tell whether an incinerator in their neighborhood runs well or whether it runs poorly?

Dr. WAGNER. Yes; that's true. There have been very few health assessments done for any of these incinerators.

Chairman WYDEN. You also stated that many of the incinerators don't have emissions control equipment.

Doesn't that mean that we don't know whether or not these incinerators emit dangerous emissions?

Dr. WAGNER. Yes; that's true.

Chairman WYDEN. Do we know anything about the level of toxic emissions emanating from these incinerators?

Dr. WAGNER. Some of the studies that have been done—and again, they are very limited studies—have indicated that such things as dioxin, furans, other emissions that we are concerned about from any types of incinerators are being emitted from these. Other types of emissions that would be specific to medical waste, such as pathogens and things of that sort, we have no information on.

Chairman WYDEN. They are very hard to test for, are they not?

Dr. WAGNER. Yes.

Chairman WYDEN. The temperature at which the waste is burned is also crucial, as I understand it.

Dr. WAGNER. Yes.

Chairman WYDEN. The length of time that the wastes are burned is also critical.

Do we know anything about temperature controls or the length of time that is being employed to burn these wastes?

Dr. WAGNER. There is some disagreement over that. What States have done, and have tried to—and they are regulating in this area—on the best available information they had, set such retention times. When you are going back to some of the inconsistency here, States have a tendency to look to other States when there's no Federal guidance on such matters, to set other standards. So, it gets to be a syndrome of people setting standards on the basis of other people's standards, and it all goes back to being based on very limited information. So, there's a problem there.

Chairman **Wyden**. Now, much of what we've said about incineration would also be true with respect to autoclaving, which is known as steam sterilization.

Dr. **Wagner**. Yes.

Chairman **Wyden**. How can we assure people that these two treatments, autoclaving and sterilization, are properly being done to safely render these materials harmless?

Dr. **Wagner**. At the moment, you would have to at least encourage more enforcement or monitoring of these facilities, study them, and issue more complete standards. Possibly, worker training issue is relevant here. Again, it's anecdotal information, but from what we understand, frequently the operators of these incinerators are maintenance workers that may not have received any sort of extensive training in how to operate the facilities.

So, possible policy options that are available for trying to ensure that they are being properly operated and not causing problems, that is, waste is being handled in an environmentally sound way, would be to look in those areas.

Chairman **Wyden**. In the analysis that you have done for us, you make it clear that problems with incineration and other techniques are so serious they are contributing to illegal dumping and midnight dumping.

Could you amplify on that statement?

Dr. **Wagner**. It's a possibility. No one knows for sure what the real sources of the illegal disposal are. Some of it is just improper disposal. Some of it may not even be illegal. Some of it gets left in dumpsters by small medical offices. Depending on what State or locality you're in, that may or may not be illegal.

But in some areas, for example, the State of Pennsylvania, they have banned all infectious medical waste from going to landfills. At the same time, they have put a moratorium on siting or permitting new hospital incinerators. This can, for some hospitals or some localities, leave a capacity shortage for how to handle these wastes.

I'm not saying that necessarily what we're seeing somewhere else is from the State of Pennsylvania, but it's the kind of regulatory bind that could lead to a short-term problem of where you do put the waste.

Chairman **Wyden**. When you have this kind of regulatory black hole, where no one is willing to take it and take the lead, that encourages the kind of illegal dumping and disposal problems that we have all heard.

Dr. **Wagner**. It certainly could. We have seen that in other waste areas—hazardous waste—here, part of the original motivation for having a cradle-to-grave system incorporated into the Resource Conservation and Recovery Act was so we could better keep track of the waste and make sure that disposal options were available and they actually were making it to——

Chairman **Wyden**. But the lack of a system initially with hazardous waste caused illegal dumping.

Dr. **Wagner**. Right.

Chairman **Wyden** And the lack of a system with respect to medical waste can cause the very same problem?

Dr. **Wagner**. Yes.

Chairman **Wyden**. I may have some additional questions in a moment.

Let me recognize my colleague, Mr. Flake.

Mr. **Flake**. No questions at this time, Mr. Chairman.

Chairman **Wyden**. Let me ask you some questions, Doctor, about the workers and these hundreds of thousands of people who come in contact with medical wastes.

Your statement indicates that risks to the workers are not confined to those just in direct contact with patients, but it also can affect those who work in housekeeping—janitorial and refuse handling, as well. Is that correct?

Dr. **Wagner**. Yes.

Chairman **Wyden**. We already know that 300 health care workers die each year from hepatitis B due specifically to workplace exposure?

Dr. **Wagner**. Yes; you have to understand how much of that is a result of their direct handling of the waste is not clear. That's not distinguished.

Chairman **Wyden**. Many of those deaths could be preventable with hepatitis B vaccinations, would they not?

Dr. **Wagner**. Yes; I believe so.

Chairman **Wyden**. What percent might be preventable?

Dr. **Wagner**. I'm not sure.

Chairman **Wyden**. It is my understanding almost all of them, over 90 percent.

Dr. **Wagner**. Yes.

Chairman **Wyden**. In your testimony you state that only 20 to 40 percent of all health care workers receive vaccinations. Wouldn't this be a simple way to eliminate a major type of risk from infectious waste ?

Dr. **Wagner**. Yes; it would seem so.

Chairman **Wyden**. Why hasn't OSHA or the Centers for Disease Control required those vaccinations? They have not required them, have they?

Dr. **Wagner**. No; they have not.

Chairman **Wyden**. Any indication why not? Here's a chance, with a fairly simple step, to protect the health care workers of this country. I've got to think that those health care workers are plenty frightened, just by what they've seen of reports in the news. You are telling me that here is a step that we could take, vaccinations, that would prevent most of the risk here, and the Federal Government still has not taken it.

Dr. **Wagner**. Yes; I think that they may be considering—if there is a rulemaking pending—to address some of these issues. Certainly workers and unions, I think, have been expressing their concern over these matters. But to date, they have not required vaccinations.

Chairman **Wyden**. So, they may be considering it, but they have not initiated formal rulemaking. Any approach that's being considered now would still take some time before the two Federal agencies could protect workers. Isn't that correct?

Dr. **Wagner**. Yes; there certainly will be some lag here; yes.

Chairman WYDEN. You also state that a significant amount of occupational exposure could be reduced through better packaging practices. Is that right?

Dr. WAGNER. Yes.

Chairman WYDEN. You also state that workers report that packaging today is often very sloppy, and that bags and boxes leak fluids, and they often have needles or sharps protruding from them.

Dr. WAGNER. Yes.

Chairman WYDEN. Isn't that something that could be easily preventable, easily fixed?

Dr. WAGNER. Yes; a lot of it that may fall back to one of the types of policy options that I mentioned—in addition to Federal or governmental regulatory action—hospital operating procedures, that either follow the recommendations that are in place, or the guidelines can be strengthened and internally enforced more to ensure that packaging is such that the workers are not as directly exposed.

Chairman WYDEN. Has OSHA done a comprehensive analysis of the risk these wastes present to workers?

Dr. WAGNER. Not to my knowledge; no.

Chairman WYDEN. Any idea why not?

Dr. WAGNER. No.

Chairman WYDEN. Doctor, you also testified that training workers in the proper handling of these wastes can help reduce the risk. But you also go on to say that many health care institutions are, quote, "reportedly providing minimal training and incredibly that they may be requiring workers to sign a form stating that they have been trained in an attempt to limit any future liability to the facility."

Doesn't that suggest a very clear need for the Federal Government to step in and protect the workers?

Dr. WAGNER. Again, that's anecdotal information that we have. It is true that we're hearing a lot of reports that workers are not receiving extensive training, that it's very cursory, and that there's a lot of turnover in these work forces, so they may miss such an orientation. All sorts of problems result from this.

Chairman WYDEN. Now, it's my understanding that at least CDC has done a little bit with respect to health care workers—some guidelines. But with respect to the people who are handling these materials, handling and transporting them, and disposing of the waste offsite, which means taking them a significant distance, the Federal Government hasn't done anything in that regard.

Dr. WAGNER. Right. In fact, the Centers for Disease Control issued a joint advisory notice with OSHA last fall, in which it recommends that health care workers treat all blood and body fluid as infected with a blood-borne disease, a communicable disease. They limit it to health care workers, as I understand.

This is what they call universal precautions which led to some hospitals classifying more and more of its waste as infectious, trying to match it up with EPA recommendations for how to handle waste of that sort. So, this made, for some hospitals, what was about 10 or 15 percent waste stream being called infectious, now growing to 80 or 90 percent.

CDC, realizing that there were these sorts of implications, issued what was an attempt at a clarification in June of this year, saying that they did not mean for waste handling practices to change.

It's not clear that this clarified anything. Does this mean that workers who are handling the waste are at less risk than the health care workers within the same institution? It seems that further clarification would at least need to be made on that point.

Chairman WYDEN. I just think it's bizarre to have the Federal Government try to put out rules for health care workers and then not use the same information to apply to people who transport infectious wastes. Is there any explanation for that?

Dr. WAGNER. The CDC guidelines apply to onsite handling of the waste. But even within the hospital, health care workers versus other housekeeping or waste handlers onsite, it's not clear how they are justifying that distinction. In that you're absolutely correct.

Chairman WYDEN. But aren't there significant exposure problems for those who handle and transport medical wastes?

Dr. WAGNER. Within the hospital; yes.

Chairman WYDEN. My sense is that people are going to be desperate to get this stuff out of their hands, and it will be bounced around and transported, and moved around hither and yon, and it would seem to me you would have very significant health problems associated with doing that.

Dr. WAGNER. Yes; you could. Again, we are limited to just what anecdotal information we've been able to gather on that. But there does seem to be a problem.

Chairman WYDEN. Now, it's my understanding that the Environmental Protection Agency hasn't even come up with a consistent definition of what these wastes are, and the failure to do so certainly affects policy and steps that could be taken to deal with it.

Why has the Environmental Protection Agency not come up with a definition and the essence of moving on to other solutions?

Dr. WAGNER. The Agency has a definition of infectious waste. They categorize certain types of medical waste and with certain characteristics in that. There's some inconsistency between its working definition of infectious wastes and that of the CDC. For infectiousness, there is no test like there is for other chemicals like a toxicity test. There is no threshold set and no test that you use to determine infectiousness. It is a somewhat arbitrary kind of definition which has led to some of the discrepancies between how EPA defines it, how OSHA, and again, how States and other people will classify certain types of infectious waste.

The biggest source of discrepancy between CDC definition of infectious waste or categorization of infectious waste and that of the EPA is over the communicable disease types of wastes, those with blood-borne diseases.

Chairman WYDEN. Why is onsite incineration becoming what you term as a less viable policy option?

Dr. WAGNER. It appears as more stringent controls are adopted at the State level for air emissions, and also for the disposal of ash that is generated by the incineration of these wastes, the existing incinerators will need to retrofit their units to meet those standards. In some cases they may not have the physical room to do that or they may decide—the costs for handling these wastes are going to go up in any case. It may be from a cost perspective over the long term or whatever. It may be easier for them to ship the wastes offsite.

For that reason, it seems like there's a likely trend toward more regional facilities, either where hospitals get together and build an incinerator for their waste, or upgrade one facility's incinerator, or there will be commercial offsite facilities to treat these wastes.

Chairman **Wyden**. What is the waste producers' liability if they move it offsite?

Dr. **Wagner**. The liability issues right now are very up in the air. It's a real concern to site these facilities and finance them. These are issues that are not clear.

Chairman **Wyden**. But there's no question that as we run out of onsite space, we open ourselves up to a whole host of other dangers.

Dr. **Wagner**. Certainly.

Chairman **Wyden**. What are those dangers?

Dr. **Wagner**. Certainly, more of the waste will be transported, which lends support for the type of manifest system the current legislation is attempting to address. From more transportation you can expect that there will be accidental spills and things of that sort that may pose a more direct environmental or public health hazard.

Chairman **Wyden**. Are there transportation guidelines in existence now for moving medical waste between localities?

Dr. **Wagner**. Some States may have them, but not at the Federal level; no.

Chairman **Wyden**. So, we are going to start shipping these medical wastes up and down the interstate system and over our roads, and at this point there are no guidelines for doing it?

Dr. **Wagner**. That's already happening. There's a lot of movement of waste. Some States have manifest systems, and also some countries. Canada is close enough that they are receiving some of our wastes, and we receive some of their waste. That movement is taking place.

Chairman **Wyden**. Is the country running out of landfills at this point as well?

Dr. **Wagner**. In some areas there is a capacity shortage. There's certainly landfill space. It's an issue of whether it's able to meet permits, that is, the conditions that it can be permitted. So, there is that problem in some areas; yes.

Chairman **Wyden**. Do you see battles emerging between the States and the localities as to where these landfills are going to be located?

I'm tempted to see a parallel again to the way we dealt with other hazardous wastes, even low-level radioactive wastes. It's been a fight—not in my backyard. Are we starting to see the same kind of problem emerge with medical wastes as we don't have enough onsite disposal capabilities?

Dr. **Wagner**. Certainly, as with any type of waste facility, you're right. There has been difficulty in siting these. The siting issue in general has just been difficult in recent years. However, in some areas, such regional facilities are being sited. When the public is involved early on, you find a higher success rate for actually siting facilities.

Chairman **Wyden**. You talked in your statement about the various State regulations involving infectious waste management. Oklahoma is one of the States that has such regulations.

We are going to hear today from a witness who will say that managers of a landfill in his State found that they were being sent human body parts by one customer. The State authorities were notified and didn't do anything about it. That sounds like a particularly egregious example of a State's handling of this situation.

What's your appraisal of the State regulations as they exist now?

Let me state it this way. How many of the States now have the kind of full-fledged regulatory systems that OTA would think are needed to deal with the medical waste problem?

Dr. **Wagner**. There's so much flux right now in what the States are doing in this area. Half of the States that have regulations are changing them at the moment. It would be less than a handful that have truly comprehensive regulations passed and that they are starting to implement in this whole area.

Chairman **Wyden**. But at this point most of the States—given the fact that they are on the frontlines—do not have the systems that are needed to deal with the medical waste problem.

Dr. **Wagner**. Yes.

Chairman **Wyden**. Only a handful, in your words?

Dr. **Wagner**. Yes.

Chairman **Wyden**. I'm going to have to go fight the clinical laboratory dollar here for a few minutes.

The gentleman from New York, Mr. Flake, has agreed to chair.

Doctor, I will be back very quickly and will have some more questions in a moment. Let me just thank you again and OTA for the fine work you're doing.

Dr. **Wagner**. Thank you.

Mr. **Flake** [presiding]. Thank you, Dr. Wagner, for your testimony. I think that concludes our questions for you.

At this time we would like to prepare to move to panel number 2. We would like to call to the table the district attorney of the Borough of Brooklyn, NY, Elizabeth Holtzman.

Ms. **Holtzman**. Good morning, Mr. Chairman.

Mr. **Flake**. Thank you. We are happy to welcome you this morning. Realizing this problem has in some way touched on your borough and the beaches in your area, we are happy to have you speak before the subcommittee this morning. You may proceed as you so choose.

I think what we will do is bring the entire panel for the second section aboard at this time. Mr. Joshua Weinstein, the president of Ocean Grove, New Jersey Chamber of Commerce; Mr. James O'Neil, the attorney general of the State of Rhode Island; William Stasiuk, Ph.D., director of the Center for Environmental Health, the State of New York; and Mr. Brendan Sexton, who is the commissioner of the New York City Department of Sanitation.

At this time we will proceed with the panel, beginning with the testimony of District Attorney Holtzman.

TESTIMONY OF ELIZABETH HOLTZMAN, BROOKLYN DISTRICT ATTORNEY, NEW YORK, NY

Ms. HOLTZMAN. Thank you very much, Mr. Chairman.

I would like to thank the Small Business Subcommittee on Regulation and Business Opportunities for holding these important hearings and for inviting me to testify on the very serious issue of infectious medical waste disposal.

Though tide-borne syringes, soiled gauze, and bloody vials are now becoming as ubiquitous as the sunbathers once were on many northeastern beaches, regulation of infectious medical waste remains so lax that a carter in New York, for example, could dump 50 tons of it on a Long Island Beach and walk away with nothing more than a $2,500 fine.

In light of such trivial sanctions, some generators or transporters of the waste may find it cost-effective to dump their debris rather than bearing the expense of legal disposal.

More than a year ago, my office pointed out that there must be felony penalties for these egregious assaults on our environment and the public health, but still nothing has been done by New York State. How many hypodermics have to wash ashore before infectious waste is adequately regulated?

The inadequacy of the penalties became apparent in New York 2 years ago when 1,400 bags of infectious waste turned up in a Brooklyn warehouse. The bags contained syringes, bloody bandages, intravenous tubing, and a jar of needles with a label warning those who touched it to notify the National Centers for Disease Control.

A Long Island waste company and its president were indicted last year, allegedly for filing three false documents with the State Department of Environmental Conservation, claiming to have properly incinerated the waste.

During a November 1986 fire in the warehouse—4 years after the waste was supposedly incinerated—fire fighters discovered what allegedly was that same waste in opened red bags.

My office and the City Sanitation Department together were able to track down the company allegedly responsible, and the case is scheduled for trial in September.

Despite the seriousness of this case, my office was not able to charge the company with the alleged warehouse dumping because under New York State law improper dumping of infectious waste was not even a misdemeanor offense. Our felony indictment in the case related solely to the filing of falsified documents.

Shortly after the indictment last summer, as beachgoers played in the surf along the Jersey shore, a 50-mile slick of hypodermic needles, pill bottles, and crack vials drifted in, eventually costing local businesses an estimated $1 billion in lost revenues, and vacationers their summer.

New Jersey officials, like New York's this summer, were frustrated in their attempts to identify the offenders, both because labels had washed off, and because there was no tracking system in place, and there still is no such system.

This is simply inexcusable. A manifesting system to track disposal must be instituted so that polluters can be found and held accountable.

Unlike infectious medical waste, toxic waste disposal is stringently regulated by Federal and New York State law. A manifesting system tracks toxic waste from the time it leaves a waste producer until it reaches an approved disposal site. Manifest forms are filled out by the producer, by each transporter that handles it, and by the disposal facility, with a copy going to the State Department of Environmental Conservation.

Thanks to this system, last March my office was able successfully to prosecute a Brooklyn hazardous waste treatment company that was illegally handling potentially lethal PCB's.

Licensed only to treat and handle paint solvents, the company repeatedly sent truckloads of PCB wastes to non-PCB-licensed disposal facilities. These facilities blocked the shipments, however, because they found them to be contaminated with PCB's. Each rejected shipment was noted on separate manifest forms that were filed with the New York State Environmental Conservation Department.

Alerted by a handful of manifests marked "discrepancy," the Department contacted my office and the company was caught and convicted. A similar manifesting system is necessary for infectious waste.

Along with manifesting and tougher criminal penalties, we need labeling. Syringes, blood vials, rubber gloves, and other medical supplies should be indelibly marked, and suppliers must keep careful records of which customer was sold which supplies. Under a twofold system of labeling and manifesting, investigators could check the markings on a beached syringe, identify the supply company, pinpoint the hospital through the supplier's record, and catch the hauler through the manifest. Without labeling, not even an airtight manifesting system would invariably enable us to trace floating medical debris back to its source.

Even if New York State drastically strengthens its regulation of infectious waste—something that is unlikely to happen in this legislative session, despite the public outcry, and despite the extraordinary need—stringent Federal regulation would still be necessary.

With most of New York State's 2-million pound weekly output of infectious trash heading for South Carolina and Virginia incinerators—often by out-of-state carters—disposal is clearly an interstate business. Once a truck crosses a New York State line to another State, it is out of New York's control. We cannot force other States either to start manifesting or to turn over their manifest forms if they do have a system. Thus, State regulators and prosecutors might never know if a carter dumped its medical waste shipment in New York, en route to a southern incinerator.

Labeling should also be a Federal requirement. Otherwise, New York could initiate the strictest labeling program in the country, and still find untraceable waste on its beaches courtesy of another State.

It is encouraging to see that the United States Senate has taken action on the medical waste crisis, passing a bill last week which authorizes tough felony penalties for illegally generating, storing, treating, transporting, or dumping infectious medical wastes. The bill orders the Federal Environmental Protection Agency to create a manifesting system and provide sanctions of up to $50,000 a day and/or 2 years in jail for falsifying a form. Illegal carting or dumping brings up to 5 years in jail, and knowingly placing someone in imminent danger carries a $250,000 daily fine and/or 15 years in jail.

Though the Federal bill has more teeth than New York's pending bill on medical waste, and specifically requires manifesting, it needs to go further. The Federal bill orders manifesting, and imposes criminal penalties, only in New York, New Jersey, and Connecticut, not the entire country.

Aside from raising constitutional questions, such limitations could impede the legislation's effectiveness. If a carter brings New York waste to South Carolina, the paper trail can get fuzzy. For instance, the carter may contract with another carter from a State where manifesting is not required.

Also, the incinerator operator in South Carolina does not have to report any information to New York. There may be no way to determine whether the load that arrives at an incinerator matches the load that left a New York generator.

Furthermore, the bill does not require that a copy of the manifest be sent to EPA. That means the agency will not be able to monitor disposal, and unscrupulous handlers could continue to foul our beaches undetected.

On the other hand, one of the best things about the bill is that it allows prosecution before truckloads of needles and gauze are found festering in some warehouse or dumped on a beach. A pending New York State bill, by comparison, waits until the illegal dumping takes place and lives endangered before applying any sanctions.

Under the State's pending legislation, illicit carters could drive their medical cargo all over the State, breaking every handling rule, and not even be charged with a misdemeanor until they actually dumped the trash. Infectious waste is essentially a loaded gun, and should be legally recognized as such.

In New York, unlicensed possession of a loaded gun is a felony because it is ludicrous to have to follow criminals around until they shoot someone. The same logic should certainly apply to environmental crimes.

On this and other scores, New York's infectious waste bill that is presently pending is anemic. There is no manifesting requirement, no labeling requirement, no alternative tracking system requirement, and though the bill authorizes prison terms and $50,000 fines for dumping infectious waste, it places serious obstacles in the way of obtaining felony convictions. Prosecutors must prove a substantial risk of physical injury—not just a potential risk—or dumping is merely a misdemeanor.

Likewise, under regulations to be announced tomorrow by New York's Health and Environmental Conservation Departments, generators, transporters, and disposers of infectious waste do have to fill out manifests, but do not have to file a copy of the form with the State Environmental Conservation Department, largely because the agency claims to be overburdened with paper work.

This position is absurd. The filing should be required and State officials should develop a more sophisticated computerized system to monitor the information on the manifest.

How much worse must things get before the Federal Government and New York State take serious and systematic steps to attack the problem?

It has been more than a year since I called for tougher action in New York State. That has not yet happened.

New Jersey Senators Bill Bradley and Frank Lautenberg, among others, asked the EPA almost a year ago to devise a Federal waste tracking program. They were still waiting for a response when they proposed their medical waste bill last week, and although New York's 1987 legislation on infectious waste, which the new bill will amend, ordered the State Health and Environmental Conservation Departments to announce regulations by April 1988, neither agency had even begun to work on them as of early July this year. Emergency regulations were finally drafted only last week.

The rules were critical because whole sections of the legislation had been deliberately left vague, pending the two agencies' input.

But along with providing funding, developing regulations, and offering specific remedies, the State and Federal governments must start looking at the much larger issue of how to cope with and curtail the proliferation of medical waste. Over the past several years, hospitals have shifted from glass products to plastic, creating more waste.

Moreover, when plastic products are incinerated with ordinary paper trash, dangerous dioxins are released into the atmosphere. According to many experts, recently the push has been for hospitals to burn all their own waste, which could exacerbate the air pollution problem.

Unless an overview to the medical waste problem is developed, one health hazard may simply be traded for another.

To its credit, New Jersey has legislation pending that not only tightens its regulation of infectious waste, but would set up a commission to study the broader issues and forge a comprehensive State plan. Other States, as well as the Federal Government, need to follow that lead.

Thank you, Mr. Chairman and members of the subcommittee.

Mr. FLAKE. Thank you very much, Ms. Holtzman. We certainly appreciate your testimony.

[Ms. Holtzman's statement may be found in the appendix.]

Mr. FLAKE. Our procedure will be to hear the testimony of all of those who are here today, and then we will come back and follow with our questions.

Mr. Weinstein has requested that he be allowed to summarize and put into the record his statement. I request unanimous consent that that be the order.

Mr. Weinstein is the president of the Ocean Grove, NJ, Chamber of Commerce, as well as a businessman. We are happy to have you here, Mr. Weinstein, and to hear from you. I have Rockaway Beach in my area. I have been there visiting with business people, so we look with interest to hearing your words, which I am sure are similar to those that I've heard. We would like to hear your testimony now.

TESTIMONY OF JOSHUA WEINSTEIN, PRESIDENT, OCEAN GROVE, NJ, CHAMBER OF COMMERCE

Mr. **WEINSTEIN**. Thank you. I appreciate the invitation to be here. I want to thank the subcommittee as well as all those who are involved with inviting me here today.

I have an opening statement which basically gives the facts as far as are appropriate for my appearing here. The papers I brought with me today, that you have copies of now, basically give the whole picture. The statement I am going to read now is an overview of that.

When I organized a group of local business persons in mid-July in an attempt at getting some action to address our mutual plight, I never thought it would bring me to Washington, DC. I am aware that this, as well as any other news story, has a limited life span. This involvement has grown, and continues to grow, and must eventually result in improved public awareness and governmental action to deal sternly and expeditiously with those that pollute our planet.

As an aside for a moment, in the past week many things have happened. The establishment of an organization called the Coastal Business Coalition, which is made up of various municipal governments up and down the shoreline of New Jersey—basically in Monmouth County—has grown to become a viable organization and, hopefully, it will continue, and we will get people north of our area and south of our area. The oceans move but the land doesn't, and we have that problem to deal with.

My appearance here has a mixed value. It will provide additional exposure of a wider dimension and also the continued publicity, which is positive—if it is positive—can help our disastrous season down in the shoreline of New Jersey, but if played up by the media in negative terms, it could cause even worse public doubt as to the safety of our ocean swimming.

Our basic problem in the shoreline of New Jersey is how do we get people to return to our areas after they have been scared away by this particular problem. The particular problem in the Monmouth County area was not infectious waste per se. No question about the fact that sewage that was dumped into the Atlantic Ocean off of Asbury Park is infectious waste, but not the same type as has been addressed by the previous speakers, but the problem is the same. The problem is how do you deal with it.

So, we are concerned about restoring the trust of our public inhouse, and that is one of the main reasons why we formed this coalition and one of the prime reasons why I'm testifying today. That's one of the biggest difficulties we have.

In our case, there was no problem in identifying the source. It was coming out of an out-fall pipe from a primary sewage plant in a town just north of us, Asbury Park. The problem was not, as I say, to identify. The problem was one of coordination on the part of Federal, State, and local governments to act. The authority to act with responsibility seems to me to be the main reason for my appearance here today.

Thank you.

Mr. **FLAKE**. Thank you very much, Mr. Weinstein.

[Mr. Weinstein's statement may be found in the appendix.]

Mr. **Flake**. At this time we'd like to hear from Mr. James O'Neil, the attorney general, State of Rhode Island.

TESTIMONY OF JAMES E. O'NEIL, ATTORNEY GENERAL, STATE OF RHODE ISLAND

Mr. **O'Neil**. Congressman Flake, Chairman Wyden, and distinguished counsel, good morning.

I certainly appreciate your invitation to appear and testify concerning the extremely distressing issue of medical waste and its improper disposal.

I am equally confident that all of you are well aware that medical waste has been washing ashore along practically all beaches of the northeast coast, including those in the State of Rhode Island and Providence Plantations. I am equally confident that each of you shares my outrage.

As attorney general of the State of Rhode Island, and as a citizen, I am not simply concerned with the presence of this waste along our coastline, but I am appalled that Federal law enforcement resources have not been rallied earlier in a well-coordinated fashion to investigate, apprehend, and prosecute the individuals or corporations responsible for this problem.

Obviously, it is important that the seashore, our Nation's most pristine natural resource, be saved from the onslaught of this foul debris.

It should be emphasized that the problem of medical waste, currently of epidemic proportions, is not simply a problem of recent vintage. In August 1987, the residents of the State of New Jersey were shocked when syringes, needles, and other medical waste polluted their shoreline, resulting in the closing of some beaches during the height of the tourist season.

This summer, 1 year later, several New York and New Jersey beaches have been closed due to the invasion of medical waste. This summer the problem is greater in dimension, not limited simply to New York and New Jersey. Since June of this year, the contamination of our shoreline has slowly worked its way up the northeast coast.

If you would care to refer to attachment A, there's a chart tracking the flow of the waste as it traveled up the northeast coast. Let me just generally outline what's elaborated in that chart.

June 3 and 4, 1988: Four vials of blood wash up on Island State Park Beach in New Jersey. Press reports indicate two of the samples tested positive for AIDS, one tested positive for hepatitis B virus.

July 2–9, 1988: 141 vials of blood were found in the mud flats of Bayonne, NJ. Again, press reports indicated that five of these samples proved positive for AIDS, one sample proved positive for hepatitis B.

July 6–9, 1988: Jones Beach, Long Island, NY, contaminated by vials of blood. Again, press reports indicated that AIDS and hepatitis B virus were discovered among them.

July 13, 1988: Four beaches in New York were closed, where medical debris, some contaminated by hepatitis B virus was discovered.

July 14, 1988: The discovery of syringes forced the closing of beaches in West Haven and New Haven, CT.

July 16, 1988: Rhode Island beaches became the victim of medical waste.

My home State is affectionately known as the Ocean State. However, as of last Thursday, 135 exhibits of medical waste have been recovered from our beautiful beaches. They are elaborated in attachment B if you could refer to same.

If I may, Congressman Flake, I now ask the subcommittee's indulgence while I display a representative sampling of the evidence recovered, if I may?

Mr. **Flake**. You may do so.

Mr. O'**Neil**. Thank you, sir.

[Demonstration of recovered waste material.]

Mr. O'**Neil**. As you will note, Congressman Flake, we have here part of a body cast.

Mr. **Flake**. No body in it, though.

Mr. O'**Neil**. This one is known as a red bag.

Part of a respirator.

IV container.

Your basic syringe and needle. However, as you will note, there's still blood on the needle and contained within the syringe itself.

Mr. **Flake**. I think that as you show them to the Chair, you might also show them to the observers.

Now on those syringes, how many did you indicate were tested for, or have they been tested for AIDS as well, or just hepatitis?

Mr. O'**Neil**. We don't have that problem in Rhode Island—the AIDS situation, that was really into New York or New Jersey—we have not yet been faced with that.

Mr. **Flake**. I'm not sure how to take that as a New Yorker. But we will come back to that in questions and answers.

Mr. O'**Neil**. I not only want you to take it, but I want you to keep it.

[Laughter.]

Mr. O'**Neil**. This is a colostomy bag.

I might say I did have some rubber gloves, but I didn't want to overdramatize this.

This, again, is a small needle that was found within a bottle. If you look at this closely, you will see there's a needle in this bottle, if any of you care to step forward. I mean, that explanation that we had addicts actually injecting a substance and discarding their works on the beach is absurd, and I think this is exemplary of what we're faced with.

Again, here we have a syringe, and a variety of other items. Notice the size of that syringe. I think sometimes people think we just have a simple diabetic type of syringe and needle washing ashore.

This was found in a cove not far from my home—plastics.

This is a prescription bottle that could have come from most anywhere.

Mr. **Flake**. How many other items are in the bag there?

Mr. O'Neil. I am just going to conclude this because I have all of 135 with me. These are all syringes and needles. The other bag contains various items of medical waste. But I think this is an exemplary one—look at the body cast. You will understand that we are not just talking about a few miscellaneous items.

Mr. Flake. We understand that fishermen have pulled up sheets and other hospital items.

Mr. O'Neil. That's correct, sir. So, it is not a phenomenon that restricts itself to a summer season.

Mr. Flake. Although we are not at a question and answer period, I have just one question. Are there any names on this that can be traced back to any hospital?

Mr. O'Neil. Inspector Kelly, who accompanies me here today, was successful in working with our State Department of Health in ascertaining the identity of one individual, and we coordinated that investigation with the authorities in the city of New York, and particularly with the U.S. attorney, and I believe with the law enforcement authorities in Brooklyn in Ms. Holtzman's district. So, we've had success with that.

I am not at liberty to disseminate that information, although I know others earlier have. It's my practice not to because I don't want to jeopardize the nature of the investigation or the possible success of that.

Now, as you see, the medical debris found on Rhode Island beaches includes, as I indicated, syringes and catheters, colostomy bags, and whatnot.

I can go through the other litany of what happened on July 17, 1988, South Beach, Nantucket, MA, that popular resort, which I think is rather interesting. We have given you a photocopy of one of the items found there. It's noted as attachment C. I think it's worth looking at if you would, please. You will notice that it says NYC-EMS. I don't want to be too hard on New York City, but I think we can infer that's New York City. It's a sign bearing the letters NYC-EMS, which are the initials for New York City Emergency Medical Services.

The city of New York provides these signs to hospitals which, in turn, issue them to their emergency medical technicians. The EMT's attach them to their license plates to obtain parking privileges. This ended up on the beach in Nantucket.

So, as I said, discovery of similar debris continues to this date.

Now, the tracking of this medical waste by computer modeling has been conducted by the New Jersey Department of Environmental Protection, the New York Department of Environmental Conservation, and Professor Malcolm L. Spaulding of our own University of Rhode Island. These reports clearly indicate that the waste most likely originated in New York Harbor.

Frankly, I did not find the need, Mr. Chairman, for these scientific models to lead me to such a conclusion. The O'Neil family has resided in Narragansett, RI—one of the most beautiful coastal communities and beach fronts in the United States—for over 50 years. As a young man, I personally worked in our fishing industry for approximately 4 to 5 years. Today, I remain well acquainted with a number of offshore commercial fishermen. They have told me that they fear the problem which we are now experiencing.

As Congressman Flake indicated earlier, the fishermen have shared with me the horror stories of hospital sheets becoming snagged in their nets as they dragged off the northeast coast.

Now the point of my appearance before this subcommittee today is to state clearly and unequivocally that the problem of medical waste demands immediate Federal action.

Last week, gentlemen, I met with the Environmental Protection Administrator, Mr. Lee Thomas, who promised to take action to address this problem. A week before that, I had the pleasure of meeting with U.S. Attorney Andrew Maloney of the eastern district of New York. I must say that Mr. Maloney was extremely cooperative and shared my concern.

He, U.S. Attorney Maloney, has taken action to establish a well-coordinated approach to address the medical waste problem by forming a task force comprised of the Coast Guard, the FBI, and other investigative agencies. Mr. Maloney has graciously accepted my offer to include an attorney from my office as a representative on that task force. I clearly compliment Mr. Maloney and my colleague, District Attorney Ulzman, for their efforts in trying to combat this problem.

My staff has also discussed the medical waste problem with the regional Coast Guard commanders and law enforcement agencies of the northeast States, including Attorney General Joseph Lieberman of Connecticut, who shares my concern.

On the basis of these discussions and further investigation by our Department of Attorney General, it is clear that a strong and vigorous effort by the Federal Government, in cooperation with State law enforcement officials, must be mounted in order to eliminate this national problem. The welfare of the citizens of the State of Rhode Island and all States demands that our health and safety not be threatened by the lack of enforcement. Clearly, a well coordinated, all-encompassing Federal law enforcement effort is immediately necessary.

Prior to being elected attorney general of the State of Rhode Island, I served as an attorney with the U.S. Department of Justice for 14 years, 12 of those as an assistant U.S. attorney. Thus, I am in the unique position to view law enforcement from both a State and Federal perspective.

I assure this subcommittee that federally promulgated and federally enforced regulation of medical waste is essential to combat this heinous crime against our environment.

Chairman Wyden [presiding]. Mr. O'Neil, we were going to be here for an extended period of time. Could you perhaps make a couple of summary remarks?

Mr. O'Neil. I certainly will, sir.

Chairman Wyden. We will make your statement a part of the record in its entirety.

Mr. O'Neil. All right, I appreciate that.

If I could just wind up by pointing out one significant fact to you, and that is, that the Environmental Protection Agency is faced with the problem of stemming the flow of pollutants. They are the lead agency. However, to effectively carry out their responsibility, the Environmental Protection Agency must have consistent policy. It's my humble judgment that EPA does not have consistent policy, and that's based upon the fact that during my conference with Mr. Thomas on August 3 of last week, I found him to be very sympathetic, and I found him to be generally concerned about the issue.

However, as I conferenced the issue with Mr. Thomas, New York EPA was simultaneously announcing that it intended to enter into a consent decree with the city of New York to extend ocean dumping until the year 1998.

Now, you in the House side are familiar with the House bill to eliminate by 1992; you are familiar with the Senate side bill, 1991. There's a gross inconsistency in what the EPA Administrator is saying on one hand, that he's sympathetic to your efforts in Congress, and yet, what New York EPA administrators are doing when they extend it to 1998.

That's something I think we really have to weigh out as we consider whether they are effective in carrying out their mandate.

With that, I would simply say that we are here to stop the dumping now, and I certainly ask you to deploy the arm and power of the Congress to call upon EPA to fulfill their mandate.

I thank you very much for your patience and attention to my comments here this morning.

[Mr. O'Neil's statement, with attachments, may be found in the appendix.]

Chairman **Wyden**. Mr. O'Neil, we'll have some questions in a moment.

Certainly the example you gave is not the first time that EPA has dilly-dallied, and to think that they are going to spend years longer than Congress, in a bipartisan way, wants to, certainly is not a sign that they want to deal with this quickly, and I appreciate that last comment.

Mr. **O'Neil**. Thank you. I really am not here to take a shot at Mr. Thomas. I find him to be of genuine concern. I have respect for him. But as an agency, I question their effectiveness.

Chairman **Wyden**. We will have some questions in a moment.

Dr. Stasiuk from the State of New York.

TESTIMONY OF WILLIAM STASIUK, DIRECTOR, CENTER FOR ENVIRONMENTAL HEALTH, NEW YORK STATE DEPARTMENT OF HEALTH

Dr. **Stasiuk**. Mr. Chairman, Congressman Flake, members of the panel, my name is pronounced Stasiuk for the record.

Chairman **Wyden**. I appreciate your doing that, thank you.

Dr. **Stasiuk**. My name is William Stasiuk, and I am the director of the Center for Environmental Health, New York State Department of Health, and am submitting testimony on behalf of our Commissioner of Health, Dr. David Axelrod.

Our State appreciates the opportunity to testify today on the issue of treatment and disposal of infectious wastes.

We were asked by staff to provide you with some data that we have compiled in a recent report of hospital and medical waste practices in New York State. I have extra copies of the report which I will make available to your staff, and I will attempt to summarize that as quickly as I can.

The events of the summer of 1988, involving the closing of beaches from New Jersey to New England due to an influx of medical waste washing ashore, have turned the spotlight on the special problems associated with safe and effective disposal of medical waste.

We recently compiled a report which points out that infectious waste comprises a virtually insignificant fraction of New York State's overall solid waste stream—less than one-half of 1 percent. Nevertheless, this small fraction has created social and economic disruption as it has been improperly handled. As a matter of public policy, New York State is not prepared to accept a treatment and disposal system which results in the closing of beaches on Long Island, Staten Island, Rockaway Beach, and elsewhere, during the hottest days of the summer.

A 1987 amendment to our Public Health law required that the State Health Department prepare and adopt a Statewide Infectious Waste Disposal and Treatment Plan, in consultation with the State Department of Environmental Conservation and representatives of affected health care facilities.

A plan was prepared in response to that mandate which summarized the infectious waste generation and management practices, established a hierarchy of treatment and disposal options for health care facilities and recommended reimbursement policies to meet the operating and capital costs of treatment and disposal.

As the plan summarizes, New York State hospitals, residential health care facilities—primarily nursing homes—diagnostic and treatment centers, and clinical laboratories generate approximately 900 tons per week of infectious waste. More than 90 percent of this waste is generated by hospitals. Onsite treatment most frequently consists of incineration or autoclaving. Incineration at the facility generating the waste is the common practice in hospitals, less so in nursing homes, and virtually not done in diagnostic and treatment centers or clinical laboratories.

About one-half of the infectious waste generated is treated onsite; the remainder offsite. Transportation from the generating facility to offsite locations for treatment and disposal varies by region in New York State. Of the 650 tons of infectious waste per week generated in the New York metropolitan area, approximately two-thirds of this is transported offsite for treatment and disposal. On the other hand, almost 90 percent of the infectious waste generated upstate is treated onsite.

Approximately 190 tons per week of infectious waste is hauled out of the State, primarily to South Carolina, Pennsylvania, or New Jersey.

A variety of factors have combined to give health facilities great difficulty in disposing of infectious waste. Among these are limited nearby disposal capacity, community concern about air pollution, municipal solid waste workers' concern about disease transmission, and highly publicized incidents involving improper disposal of medical waste.

The Centers for Disease Control's recent recommendation of universal precautions for management of certain body fluids from all patients has heightened concern among sanitation workers who handle and transport medical waste on a routine basis. Such workers receive minimal, if any, training of risks of infection and proper handling of infectious waste. The result is fear of all medical wastes, often leading to a blanket refusal to handle them.

All of these factors have caused the cost of medical waste removal to increase significantly, impacting the overall costs of health care. In fact, the universal precautions have led many facilities to deal with all their medical waste as if it was infectious waste, further exacerbating the cost impact.

While there are several technologies for treatment and disposal of infectious waste, incineration is the preferred method for most categories. New York State's plan relies heavily on incineration as the best solution to the problems of infectious waste. However, the plan offers facilities flexibility in choosing treatment and disposal options which meet individual needs and circumstances, and provides guidelines for reimbursement of the costs incurred.

Should new technology evolve, the plan allows for reconsideration of the hierarchy of options.

The preferred option is incineration at municipal solid waste incinerators.

The second option is construction of regional hospital infectious waste incinerators.

The third would be regional utilization of onsite hospital incinerators by consortium of facilities.

Fourth would be incineration by individual hospitals or facilities.

Fifth would be other treatment methods.

And sixth is the catch-all and to be used as a last resort, which is landfilling.

There are significant barriers which must be overcome before the full range of options will be realistically available to a facility so that it may choose the one best for its needs and circumstances. While the preferred and generally most cost-effective option is utilization of municipal solid waste incinerators, most of those facilities now operating do not accept infectious wastes. There is no technical impediment to using this option, but worker and neighborhood concerns with the handling, transport, storage, and burning of infectious waste must be addressed if the problem is to be resolved.

These can only be overcome with improved education and training for sanitation workers and better control of the transportation of infectious waste. Recent New York legislation provides an appropriate regulatory framework to oversee these activities.

Regulations implementing this legislation have been promulgated by the Department of Health and are about to be promulgated by the State Department of Environmental Conservation which, in fact, address handling, storage, transportation, treatment, and disposal of infectious waste.

Of particular note, as mentioned earlier, is the requirement of a manifest system for health care facilities and for clinical laboratories which will provide a paper trail to facilitate the enforcement of violations of the regulations. Disposal, however, remains the key issue.

Siting any incinerator is difficult. Some New York hospitals that have simply proposed to upgrade an existing incinerator have faced significant neighborhood opposition. Furthermore, while about half of the hospital-generated infectious waste is now incinerated onsite, the State, in reaction to the recognition of the emissions from incinerators, is adopting more stringent regulations for air contaminant emissions. As a result, no existing hospital incinerator in New York State will meet the requirements which are scheduled to take effect on January 1, 1992, without extensive retrofitting.

In response to the specific issue of dealing with medical debris washing ashore on Long Island and New York City beaches, New York State has initiated several courses of action. In addition to cooperating with the various prosecutors who have an interest in tracking down the people who are responsible for the debris washing ashore, the Departments of Health, Environmental Conservation, and Parks and Recreation, have entered into an agreement to coordinate efforts for dealing with such incidents. The State Department of Health and the city and county health departments in the affected areas have agreed to uniform criteria for closing and opening bathing beaches when medical debris has been found on beaches.

As pointed out by the gentleman from New Jersey, there's been a great deal of scare caused by the presence of very isolated material, not material as documented by the attorney general from Rhode Island, but in individual instances the finding of one syringe has precipitated a panic which is entirely beyond the risks that are attendant to that.

There is a major problem, however. In New York State, generators or haulers of less than 100 kilograms—220 pounds—of infectious waste per month are currently exempted from any of the infectious waste regulations. Physician, dental, and veterinarian offices, plus many small clinics and laboratories, are not likely to generate large quantities of infectious waste. However, only a small amount of infectious waste, as has been testified to, can cause a highly undesirable problem when inappropriately disposed.

Governor Cuomo has proposed legislation eliminating the small generator exception, which will require that all infectious waste be subject to the manifest system. The legislation, which has passed the State senate unanimously, and is expected to pass the assembly shortly, makes illegal disposal of infectious waste a felony, as previously described in greater detail by District Attorney Holtzman.

Chairman WYDEN. I'm sorry, at this point we are just going to have to put your statement into the record, and if you could make a concluding remark, that would be fine.

Dr. STASIUK. I am just about to do that, sir.

Other legislation which has been proposed by the Governor and adopted by the Senate, provides $2 million to the State agencies to enhance our enforcement activities related specifically to infectious waste.

Chairman WYDEN. We thank you, Mr. Stasiuk. If we didn't have so many witnesses, we wouldn't have to have a 5-minute rule. We appreciate your help.

[Mr. Stasiuk's statement may be found in the appendix.]

Chairman WYDEN. Mr. Sexton is our next witness, commissioner of New York City Department of Sanitation.

TESTIMONY OF BRENDAN SEXTON, COMMISSIONER, NEW YORK CITY DEPARTMENT OF SANITATION

Mr. **Sexton**. Good morning. Thank you, Congressman, for inviting me here. I will try to summarize my remarks, just touch on them, and they are submitted in writing.

Chairman **Wyden**. Thank you.

Mr. **Sexton**. We have a particular kind of experience in New York City which is different from some others, though, and I would like to share with you primarily because reacting partly to what Dr. Wagner touched on, that there are recommendations or restrictions for health care professionals on how to handle this. No one seemed to care about it once the doctors and nurses were protected. No one worried about the custodians, or the waste handlers, et cetera.

But in 1985, our sanitation workers were upset at some of the material coming through the system and New York City passed what we call Local Law 57, which is a medical waste handling act. I think it was certainly the first, and I think probably the most compressed comprehensive local law about medical waste.

We created an entire new category of medical waste, called potentially infectious waste. A lot of confusion has been generated in recent weeks about infectious waste. In most cases that is only waste from patients in isolation. It is only the most infectious of the waste generated in a hospital.

In New York City, we not only banned that from the municipal system and said we wouldn't handle it, we banned what we called potentially infectious waste, which is mostly what you see here actually. The attorney general brought some interesting material. In most places in the country, this would not be considered subject to special handling of medical waste unless it came from a quarantine room—a patient with a communicable disease.

In New York City, we have the category potentially infectious waste, and we won't carry this stuff or allow it to be brought to our facilities. I recommend that approach for general use nationwide.

We also gave ourselves certain police powers, inspection powers, and so on, and I must say that I think this is absolutely essential. We have certainly caught many, many health facilities in what appears to be carelessness or indifference, allowing some of this waste to be mixed in with regular trash, and we, of course, have found others who were doing a more callous or irresponsible outright illegal dumping of some of the waste.

It is important to note that there is a lot of waste in a hospital which is not medical waste. Hospitals run cafeterias, they run offices, they have all sorts of waste. They have big waste management problems that have nothing to do with medical material. We will pick up that stuff in New York, for instance, but it takes terrific vigilance to manage all that waste and have no contraband make its way into it. There must be enforcement attached to the activities.

I would also say that, as you know, and as District Attorney Holtzman has pointed out, the penalties for violations—although in New York we have very good stiff civil penalties, because you can enact those on a local level—there are no felony penalties for any of this.

The district attorney's case you referred to in Brooklyn where a Long Island firm had left 1,400 bags of infectious waste in New York City—as she mentioned, she only got a felony case out of it, for nonmedical reasons.

In New Jersey, the attorney general with whom we work very closely, just got a terrific case in New Jersey. He caught a laboratory dumping 2,500 vials of blood—some of it contaminated—in three different locations, including in one place only 100 feet from the water. He can't get a felony charge out of that, although he's trying.

In New York we have very good cooperation from the prosecutors, District Attorney Holtzman, the Manhattan district attorney, U.S. Attorney Maloney, already mentioned, and they are all helping us when we come up with a case, search the statutes and see if we can find felony reference, endangerment, or something like that. But it is not easy in the cases we've made.

If you actually catch a person putting a piece of raw waste in the water, and you're right there at that moment, you can probably get a good Federal case out of it, but you have to be there right at that second.

We had many investigations going, and some of them you have probably heard of. I will say that we do believe that the large medical institutions are their own sort of problem in carelessness or indifference, but there's no question we have a bunch of smaller operators whose problem is not one of carelessness or indifference but of outright irresponsibility and illegality.

However, that gets to a problem in the current state of this field which I'd like to share with you from my testimony, which is that there is almost no data out there on who's generating medical waste, for what purposes, from what patients, because that obviously determines to some extent how hazardous it is. There is no manifest system of any kind to speak of.

We have supported legislation locally in New York. We find that we are glad the State has introduced some in New York, but it is flawed by certain loopholes and defects, and, of course, there's nothing federally to help us when waste goes out of State or comes in from out of State, and we need it.

Right now we have a terrible problem in that proper legal handling of this waste is very expensive, and the temptation to dump illegally is very high. We have a law in New York City that says my workers won't pick this stuff up, and believe me, they're very good at policing that, because they won't. Someone does, and he charges the medical facilities a bunch of money. Several hundred dollars a ton has frequently been quoted to us. That would be many thousands per truckload, and the temptation for some of that to go awry is very, very serious.

So, I would ask, trying to skip to the conclusion as fast as I can, that you help us with those two problems.

One, the question of the database, which is a medical waste manifest system. I say medical, not infectious, because I want to get all that waste covered, not just the true classical, as it's called, infectious waste. That would also have the result already mentioned, that prosecution might be a lot easier.

But second, if the Federal Government can help us foster cheaper, practical onsite incineration or similar safe disposal in or near the medical facilities. Right now the air quality standards and other regulations make it so difficult for hospitals to incinerate onsite, and, as my colleague from the State Department of Health points out, they are about to get even more difficult.

I think we have to recognize that medical waste is a teeny fraction of the waste stream. Incinerating it would have a teeny impact on our air quality concerns, and it's a tiny fraction of the waste stream which contributes way out of proportion to public concern, and we ought to allow special treatment of it. In particular, we ought to allow hospitals to incinerate it before it ever leaves the building. That way it's not trucked through anybody's streets. It's not trucked across to other States. There's less temptation for it to disappear. If it leaves the premise at all, my investigators know there's something fishy going on. They don't have to follow it around for 4 days to see if someone brings it to a permanent incinerator, and it just becomes a much different way of handling waste.

I think if we don't move toward onsite incineration, for which we definitely need EPA help, we will face this problem for decades.

Thank you.

[Mr. Sexton's statement may be found in the appendix.]

Chairman **Wyden**. Mr. Sexton, thank you.

I note again that the Office of Technology Assessment takes EPA to task for failure to do basic research in this area. One of the reasons we don't have the kind of database that States and local governments need, as you call for here, is because EPA has been dragging its feet on it. So, your point in that regard is heard, and we are certainly going to do everything we can to pry EPA in that regard.

Ms. Holtzman, thank you very much for coming. I think it's particularly disturbing to hear about the lack of criminal sanctions in this area. Certainly, with criminal sanctions, you can send a message of deterrence, if enforced by prosecutors like yourself who want to put an end to the illegal dumping of medical wastes.

I want to make sure I understand just what the gaps are.

Right now, if you dump medical waste in New York, it's not a felony under State law; is that correct?

Ms. **Holtzman**. That is right, Mr. Chairman. I am not sure, in fact, that it is even a felony under Federal law. I am concerned that, despite the public outcry and the presence of these medical wastes, and in some cases, infectious medical wastes on our beaches, the State has failed to respond with stiff criminal penalties. We must have serious regulations on manifesting, including the filing of manifesting forms with a Government agency. If we do not get help from the U.S. Congress, we are going to be in trouble next summer, the summer after that, and the summer after that.

Chairman **Wyden**. You've identified the gaps at the State level, and I'm quite certain that there are gaps in many, many State laws around the country. With respect to the Federal law, unless you actually get caught dumping it in the ocean, there is no Federal sanction against dumping such waste in the oceans.

Is that your understanding?

Ms. **Holtzman**. I'm not an expert on the Federal law. But my understanding is that you do not have a felony, and that concerns me.

Chairman **Wyden**. So that in either of these situations, say where someone in the Midwest brings their waste and dumps in New York, there's no Federal sanction against that. Or, as I think what would be of concern to my constituents, say somebody from the East treks it across the country to what they think is a small, pretty State in the West. They can dump it there, and there's no Federal sanction under either of those situations.

Ms. **Holtzman**. That is my understanding. There may be Federal sanctions, but they are not stiff enough. That is one of the important features of the amendment that has been adopted in the Senate, but the Senate bill only applies to three States.

Chairman **Wyden**. Where's the Justice Department, Ms. Holtzman, on all this? Is the U.S. Department of Justice making any effort to deal with these gaps in Federal law?

Ms. **Holtzman**. I would like to echo the comments of my colleague from Rhode Island with respect to the activities of the U.S. attorney from the eastern district of New York, who has taken a very vigorous role with respect to the law enforcement issue. But I am unaware of any major efforts undertaken by the Department of Justice. But, as you well know, I think they have been occupied with some other matters recently.

Chairman **Wyden**. I think that fairly states my concern, because I've heard from you and others that U.S. attorneys in the various States are most concerned. But if we are really going to deal with this on a national basis, the U.S. Department of Justice ought to be looking at these gaps in Federal law; should they not?

Ms. **Holtzman**. Absolutely, and they ought to not only be looking at criminal penalties. As I mentioned in my testimony, if you do not have the paper trail, the criminal penalties may not be applied because the culprit may not be found. As I mentioned earlier, we were able, through a manifesting system, to prosecute successfully someone who illegally handled PCB's. But there is no manifesting system required on the Federal level. New York State's manifesting system is riddled with loopholes, and that system is only going into effect tomorrow.

I would urge you to look at a labeling requirement so that it would make it even easier to identify the source of the problem.

Chairman **Wyden**. I think you're correct as well. You have to understand where the material is coming from in order to make the kind of determinations that are needed in order to push for a criminal law and to prosecute a case.

We are going to make darn sure that the Justice Department gets a copy of this hearing transcript because maybe that will open some eyes down there and get them interested in pushing for some criminal sanctions.

Ms. **Holtzman**. Mr. Chairman, if I just may add one thing. The thrust of my testimony is that I do not think that we can rely on the States to take the effective action. If you look at New York State—which is in the middle of a crisis—and see that it is not acting, how many other States can we rely on to act? And even so, this is an interstate problem. We are going to need some Federal help.

Chairman **Wyden**. One other question, and then I want to recognize my friend from New York.

What have been the problems in bringing prosecutions that stem from inconsistent policies and a lack of adequate criminal sanctions? Can you identify some particular obstacles and hurdles that you ran into as a prosecutor trying these cases?

Ms. **Holtzman**. We have brought one case. We were lucky in that case to be able to have the very fine cooperation of the Department of Sanitation, and we are working with them in a number of other investigations.

But I think a major problem is, first of all, that without a proper felony statute, prosecutions may be barred by the statute of limitations. If you have only misdemeanor statutes, the time for bringing prosecutions is short and does not start to run from the time of discovery. In proper felony statutes, the statute of limitations runs from the time of discovery. That solves the problem if the dumping took place long before it was discovered. That is a problem that you encounter under existing schemes.

The other issue is that the source of the dumping cannot always be found. You cannot find it because the materials are not labeled, or the labels are not legible, or the labels do not indicate the source of the illegal dumping. It seems to me crucial to have both a manifesting system that will begin at least to tell us where the discrepancies are and a labeling system so that we can begin to pinpoint the source of the problem.

I think that with these factors in place, we will also create some deterrence. I do not want to be in a situation where we have to prosecute. I would much rather have no cases and none of the medical waste on the beaches.

Chairman **Wyden**. But certainly one problem today for prosecutors is that medical wastes, by and large, aren't labeled very well.

Ms. **Holtzman**. Exactly, and not only are they not labeled, but we do not know who has dumped them, we do not know who has hauled them. It is very difficult to find that out.

There is a system in place with respect to toxic waste which addresses these problems, and the same system could be put in place with respect to medical waste.

Chairman **Wyden**. I think you've given us very helpful testimony.

I feel very strongly about a system to label these wastes, because, if you label the wastes, you, at least, have some way to trace it to its originator. Now, whether or not you implement procedures to trace the disposition of wastes is another story. But initial labeling, it seems to me, may be one way to begin to build a system where waste can be traced to its originators.

Let me recognize my friend from New York at this time.

Mr. **Flake**. Mr. Weinstein, I've been on the beach quite a bit the last few weeks, Rockaway Beach in particular. My visits have brought me face-to-face with many of the businessmen. They tell me that they have between 90 and 120 days to really make their money for the year—the rest of the year basically pays for the rent. But during that 90- to 120-day period they are able to amass enough money to carry them.

Would you agree that would be a basic assessment for your area as well.

Mr. **Weinstein**. Yes; it's what is called a seasonal business, which begins basically Memorial Day and ends Labor Day. There is some previous and post business, but most of it is in that period of time.

Mr. **Flake**. You have a business on the beach yourself?

Mr. **Weinstein**. No; I own an old Victorian hotel in Ocean Grove, which is a national historic site. I'm not trying to plug it, but it's a very old area, and it has been very popular for over 100 years. Several of the businesses in Ocean Grove, particularly, are in very, very bad straits now, hotels, restaurants, and things of that sort.

Mr. **Flake**. Now, the economic impact—how does it impact upon the city budget process as it tries now to look at what has happened in 1987 and 1988 and project itself into the future? What kind of steps are being taken to prepare for next year and the year after that?

Mr. **Weinstein**. Let me answer it this way. In my summary, the paper that I turned in to Mr. Esposito, there's a reference from Bradley Beach from Commissioner Gaynor—I think his name is—wherein they find themselves at this point in the season about $175,000 off in revenue, which will have to be made up either through tax hikes or curtailing of services because of the fact that there is that much less business.

I hope that answers your question partially. I'm not sure if it does.

Mr. **Flake**. Yes; I think it does. The reality that I think we have to face in Congress is that we really understand that there is a major economic impact to those persons who are doing business in that community.

As we look at you as a business person, what kind of suggestions do you have for us as a body in terms of what kind of responses we might be able to give that will be helpful, not only in terms of institutions, agencies, law enforcement, but in terms of the businesses that have to operate in those areas?

Mr. **Weinstein**. That's a question I really don't know how to answer.

Our biggest problem has been one of credibility; credibility on the part of those people that have been responsible for dealing with the problem, and credibility to try to get the public at large to accept the fact that in our case the problem has been cleaned up. But that, I think, is your biggest problem. I don't know how you're going to deal with that.

Mr. **Flake**. All right. Thank you.

Just one question for you, Mr. O'Neil. You've brought a number of items. Can you give some statement as to just the general testing procedure for these items. I raised the question during your testimony to testing for AIDS, and you indicated that is not done. Just give me sort of an overview of your interpretation of what happens when this stuff washes onto the beach, and then what's the follow-up procedure and how the testing is done.

Mr. **O'Neil**. Yes; thank you, sir.

With respect to the concept of testing for AIDS, what I was saying is that has proved negative with respect to any of the debris that's come ashore in Rhode Island. It is tested for all and any relative diseases. We don't have that problem yet in Rhode Island.

What happens is once a piece of evidence is recovered, we want to preserve the chain of custody as we would with any other criminal investigation. It is turned over to our Department of Health, which is headed by an administrator named Hachadorian who is responsible for the preservation and analysis of the evidence, and the locations are charted. That's about as simple as it is.

What we try to do is to develop some investigative leads that will take us to the precursor of the problem. That's what caused us to travel to New York originally.

Mr. **Flake**. So, what we're getting in essence is a kind of a merry-go-round of medical waste that's just moving up and down the shoreline for the most part?

Mr. O'**Neil**. Well, not up and down; really coming from New York and then ending up in——

Mr. **Flake**. I'm trying to get away from that.

Mr. O'**Neil**. I understand. Medical waste did, but—if you look at the currents and the charts that these scientists have designed, it's coming out of New York Harbor.

Mr. **Flake**. Mr. Sexton, you are the commissioner of New York City, and perhaps you can respond here in terms of the amount of medical waste that seems to be generated in New York, that's winding up in other places, and we've heard some basic procedures that you've put in place.

Can you give us a response on why you think it's happening, and why we, since there are three or four of us here from New York represented, are being accused of such dastardly deeds?

Mr. **Sexton**. You should remember, the Rhode Island study—such as it was—pointed out the New York Harbor and New York Bay, which is a very large area. In fact, the oceanographer showed 10 spots as points of origin as he suspected after a study. Seven of them in New Jersey and three on Long Island, if that makes you feel any better. None were in New York City. So, when we say New York Harbor, it's probably a large area.

But we do recognize that this whole region—we pick up material with New York City addresses on it, with New Jersey addresses, with Long Island addresses, upstate New York. We have tracked more than one piece to upstate New York. So, we've worked pretty closely with them.

Last year, after we had some really, I think, serious tensions with New Jersey over whether or not their problem was caused by New York in some way, I think they and we agree that we are jointly faced with some illegal dumpers, or some irresponsible medical operators, who are using the whole region as their dumping ground if they choose and probably are not dumping in the water actually. They're probably just dumping wherever. Some of it ran and just got in the water.

They're probably throwing stuff in sewers, off the end of a pier somewhere, or in the dead-end street. In our area, every street ends at the water. So, if you just backed a pickup truck to the end of some dead-end street on a dark night and threw a few bags somewhere, half of them would probably be reached by the next high tide.

We have, without question, discovered material from within our city boundaries, and we've also discovered material from outside. All of us have, actually, everybody in the region who's been looking in this has seen at least some material from their own as well as from other places.

It is a very serious problem. However, I don't want to diminish for a minute, not the least of which is related to enforcement. Don't forget, until we outlawed the city taking this material, folks could get rid of it easily. That's why I want to emphasize when New York City passed a law, they also gave us, the environmental police. We have environmental detectives to work on enforcing this law. We have terrific cooperation from District Attorney Holtzman, by the way, and from many of the other prosecutors around, to build cases, because there was no incentive to dump this stuff illegally until we had regulation.

This will be a problem throughout the area, I think. If other communities make it illegal to bring this to a landfill, for instance, which is quite legal elsewhere in our region—it's not legal in New York City—it is legal elsewhere. This is noninfectious waste, or is probably not characterized under most laws infectious waste. It is what we call in New York City potentially infectious waste. In most places in our country, this could go to a landfill somewhere for 5 bucks a ton, or for 40 bucks a ton. But not for $800 a ton as medical waste is charged for.

If we move to a system of regulation and control, please let's keep in mind the absolute obligation to have a policing and investigatory aspect of Government looking after that regulation. Because then, in fact, there is unfortunately now an incentive to get rid of this cheap and dirty.

Mr. FLAKE. I think we would want to take that under advisement.

Thank you, Mr. Chairman.

Chairman WYDEN. I think the gentleman from New York has asked a very good question which really leads me into the area that I'm most interested in—establishing national policy.

As long as you have these conflicting rules and regulations at the State and local level, it just seems to me you invite a virtual medical waste merry-go-round, where you just ship it from one place to another until some prosecutors come after it and people learn about it, and then, presumably, it's sent somewhere else. Do you agree?

Mr. SEXTON. I agree absolutely. I do want to confirm, we've tried to make some Federal cases. What District Attorney Holtzman said is true, unless you actually find someone dumping in the water, you can't make a Federal case out of this stuff. That's very disturbing to us. You can't make a State felony case in New York or New Jersey. I don't know about other States, but we've tried in both of those places. I find that ridiculous.

I especially would think that given the Clean Water Act and the history of the Federal attention to the waters that there ought to be—well, waste generally is becoming increasingly a national issue.

But obviously if it's starting to pollute the waters, then there ought to be a national policy and national law.

Chairman **Wyden**. That is exactly what we are going to need and that's what this Member of Congress is going to insist on until we get it.

Mr. O'Neil, because I think that's such a central question, I would like to explore with you just for a second these discussions you've had with EPA. Now, I gather, just based on what you said in your testimony, Congress is working on an approach that would deal with some of your concerns by 1991 and 1992. However, you said that EPA told you that it may be 1998 before your concerns may be addressed.

Could you elaborate a little bit on that?

Mr. **O'Neil**. I will. As you know, in 1977, there was a law passed banning ocean dumping by the year 1981. EPA and the city of New York carved out an exception to that New York court-ordered agreement which allowed New York City to dump off the coast.

Until 2 years ago, the city of New York dumped sludge 12 miles off the coast. I don't think many people realize that. In the last 2 years, they have gone to site 106, which is Hudson Canyon, 106 miles off the coast.

When I asked Mr. Thomas what his position was with respect to stopping the ocean dumping, he indicated that he was in accord with the congressional initiatives to terminate this by 1981-82 on the House side. Yet, the New York Times article that same day, August 3, indicated that the city of New York and EPA were considering entering into a consent decree which would extend to the year 1988.

Chairman **Wyden**. 1998?

Mr. **O'Neil**. Excuse me, 1998, which is a decade from now. That's what I find to be somewhat contradictory policy with the EPA. I must say in fairness to Mr. Thomas, he promised he would confer with the Regional Administrator in New York and report back to me. I have had continual dialogue with a deputy of his, and I really am comfortable with their communication but not with their inconsistent policy. I think that's something that we really have to drive home and determine whether or not their policy is firm enough to deal with ocean dumping or medical waste.

The other thing that's of dire concern to me with respect to the ocean dumping is we don't even know the toxicity level of the sludge that's being dumped by the city of New York. So, I have a quarrel with EPA. I also have a quarrel with the city of New York—in due respect to my colleagues here from the city of New York.

Chairman **Wyden**. Two things concern me. One, that EPA is sending mixed messages, and they're doing that right now.

Mr. **O'Neil**. Right.

Chairman **Wyden**. With respect to ocean dumping, you would say that that's correct?

Mr. **O'Neil**. I'm getting a very mixed signal, obviously, no question about that.

Chairman **Wyden**. With respect to what you know about the garbage at this point, it is coming from New York City?

Mr. O'Neil. As I think as Mr. Sexton pointed out when we say this Long Island—New York area, I would think would be fair to characterize it as. I think we can infer that it's generated by the city of New York. I think the other problem is there is no——

Mr. Sexton. People elsewhere don't get sick?

Chairman Wyden. Pardon me?

Mr. Sexton. People elsewhere don't get sick.

Mr. O'Neil. But we take care of it, we burn ours.

The problem, I think, is that there has—it's no different than when the drug initiative—think of what we could have done if we had started 20 years ago with the drug initiative that we have going today. We wouldn't have the problem.

So, what you do—enforcement comes in categories of priority. This has not been a category of priority law enforcement initiative taken by any lead agency. The Coast Guard tells me that they asked EPA to put people on board the Coast Guard vessels. EPA refused. The Coast Guard's budget is cut. Who monitors the traffic coming out of New York Harbor? We had large loads of auto fluff being shifted around until we dealt with that. There's no monitoring of what's taking place in those harbors. There's no law enforcement activity on the ocean at all.

Chairman Wyden. With respect to where this garbage is coming from, as I understand it, you have found pill bottles with names that may be of New York residents?

Mr. O'Neil. That's correct.

Chairman Wyden. Could you tell me a little bit about that?

Mr. O'Neil. I'll tell you in certain aspects of it, Congressman. I do know that some of that information has been totally disseminated by people in governmental circles, which sometimes disturbs me, because it inhibits New York's ability to investigate. But you can conclude that there was a bottle found with a name, and that name took us back to one of the boroughs in the city of New York, and we identified a particular place where that originated from.

But once that information is out, that inhibits the FBI's ability to set up surveillance and to follow the carters and see where they're dumping.

Chairman Wyden. But that is the evidence on which you base your information. You have identified some particular product that is coming from New York?

Mr. O'Neil. The EMS sign is pretty significant, but also the analysis by this Professor Spaulding in a tracing of the currents takes us back to that area.

Chairman Wyden. Is your State, Mr. O'Neil, and I'd be interested to know from our other witnesses whether they are considering taking legal action against other municipalities?

Mr. O'Neil. We are. If the city of New York and the Environmental Protection Agency enter into a consent decree extending the ocean dumping to 1998, when the court entertains the wisdom of that decree, there won't be any forum for other parties to be heard. So, therefore, in the Department of Attorney General, the environmental advocates for the people of the State of Rhode Island, we may likely file a motion to intervene in that stream of litigious proceeding that's been going on for some years.

That's a drain on our resources. We have a number of issues to address. We are responsible for all crimes committed in the State of Rhode Island. There are no district attorneys in Rhode Island, so it's a broad responsibility.

But in that effort, if we do intervene—I've talked to the National Environmental Defense Fund. My colleague Attorney General Joe Lieberman in Connecticut is inclined and agreeable to join with me. I think I'll seek Shannon's assistance, the attorney general of the Commonwealth of Massachusetts, and maybe we can take them on; if it gets to that.

I'd love to deal with it administratively with EPA. It's a much shorter route to take.

Chairman **Wyden**. Just one question for you, Dr. Stasiuk. You say in this report that was issued last week, that 125 tons of infectious waste was generated in New York essentially by the medical facilities and laboratories.

What are the health consequences of mishandling 125 tons of medical garbage?

Dr. **Stasiuk**. Virtually none. The risks attendant to dealing with medical waste once it's been generated are extremely small. CDC, and we, and any number of health agencies have looked at the epidemiology of waste handling, and there's been no indication that the mishandling of medical waste has resulted in anyone getting sick at any time. The actual experience has been that there is virtually no risk.

There is obviously a hazard that's involved. One can hypothesize a number of scenarios where someone could become infected in a way, but there's been no documentation that it has ever occurred.

Chairman **Wyden**. Are there studies to document that point?

Dr. **Stasiuk**. Yes; CDC has published a number of pieces of data on that.

Chairman **Wyden**. I think the only other question I have for you, Dr. Stasiuk, is, if a significant portion of the treatment centers and clinical laboratories that are located in New York fill out this questionnaire that you have sent out covering the methods for handling infectious waste, what kind of conclusions would you make about the practices at this point?

Dr. **Stasiuk**. I think it's pretty clear that most New York City facilities ship offsite. They have to transport. They don't have onsite treatment facilities. That's the major difference between upstate and downstate.

Chairman **Wyden**. This has been a very helpful panel. Certainly, given the fact you all are dealing with these problems on a daily basis, you can give us particularly helpful information, and we will want to work closely with you in the days ahead. Thank you.

The next panel will be Jacqueline Warren, senior attorney, Natural Resources Defense Council.

Ms. Warren, we welcome you to the subcommittee and know of the council's longstanding interest in this matter.

It's the practice of our subcommittee to swear all the witnesses. Do you have any objection to being sworn today?

Ms. **Warren**. No; I don't. I'd like to say that I have with me Andrew Kass of my staff, so I think I should have him sworn in, too.

Chairman **Wyden**. You desire that Mr. Kass be able to testify as a witness?

Ms. **Warren**. Only if a question comes up that I can't answer.

Chairman **Wyden**. Why don't we swear you both.

Ms. **Warren**. OK.

Chairman **Wyden**. Please rise and raise your right hand.

[Witnesses sworn.]

Chairman **Wyden**. We are going to make a copy of your prepared remarks a part of the record in their entirety, and if you could summarize in 5 minutes or so the principal concerns that you have, I think that would be very helpful.

Ms. Warren, let's begin with you.

TESTIMONY OF JACQUELINE M. WARREN, SENIOR STAFF ATTORNEY, NATURAL RESOURCE DEFENSE COUNCIL, ACCOMPANIED BY ANDREW R. KASS

Ms. **Warren**. Thank you, Mr. Chairman.

We've heard this morning a very good discussion of a lot of problems with the mentioned medical waste that I pointed out in my testimony. It's clearly a much bigger problem than the fact that medical waste has been washing up on the beaches, although the economic harm of that fact is very well documented and very serious.

But the overall question of medical waste management covered the major ways that medical waste is handled, and that involves landfilling, incineration, autoclaving, and sewer disposal as well. The fact is that we have a patchwork of State requirement—some better than others—but none of them composing a rational policy nationwide for the handling of medical waste.

The incineration problem is one of the most serious because incineration appears to be the major way that medical waste is being disposed of. We've heard that hospital incinerators generally emit one or two orders of magnitude greater of dioxins and furans; that they're operated by people that are poorly trained, or untrained; that they are operated in batch burning, which means they're turned on and off rather than being operated continuously, which increases the production of dioxin and furans.

The medical waste stream contains much more plastic than the regular solid waste which is approximately 30 percent plastics, and there are no emission standards at the Federal level. Some States are working on it. New York has just put out a proposal for emission standards, which you heard a previous speaker say. It's going to be very expensive for hospitals to continue to do onsite incineration and meet those standards.

There aren't standards for autoclaving. The evidence that we've seen from our own investigation of the question shows that autoclaving is done sometimes for only 20 or 30 minutes. There are other people who say it ought to be done for an hour or for 90 minutes to make sure that the infectious materials are destroyed.

Landfilling is another problem. We've done a lot of work on subtitle D landfills, and 95 percent of those landfills are not lined. They don't have correction systems. There's no monitoring for ground water contamination—they are not a suitable repository for medical waste.

So, as you look at the whole question—the sewage disposal question, which is implicated in the beach contamination situations—EPA just put out a report that said 87 percent of the systems around the country have met a July deadline for secondary treatment. Well, some of the biggest systems in the country haven't. New York is one of them. Boston is another. We have bypasses of raw sewage routinely going out into major waterways.

We also know that the CDC and some State health department in New York, recommend disposal through the sewer for certain blood products, dialysis waste, other biological wastes.

Unless we have a guarantee that those materials are going to pass through the sewage treatment system and be treated in disinfectant, that's not a proper way for medical waste to be disposed.

All of this leads me inexorably to the conclusion that we ought to have a Federal system to control the management of medical waste. We already have in place, as other witnesses have said, a hazardous waste system that handles the management of hazardous waste from cradle to grave.

EPA is going to testify later today a chronology of their activities on medical waste, so they left out two very important matters. They start with 1982. But in 1978, they proposed to include infectious waste in the hazardous waste system. When they put out the big set of RCRA regulations in 1980, they didn't include medical waste, but they said that they needed to look at acceptable treatments in order to be able to decide which things could be exempted, and they would get to it. They expected to get to it by the Fall of 1980. The fact of the matter is they have never gotten to it.

All they are prepared to say, and what you are going to hear them say today is, we think education and training are the important matters. We're going to put out guidance manuals, and only if this fails to solve the problem, will we put out regulations.

I don't think people should have to wait for that anymore. We've had enough problems for a ruined summer for business people. We've had a ruined summer in one of the hottest summers on record for people in the northeast who couldn't go to the beach. I don't think we want to have that anymore. There's really no reason, as far as I'm concerned, why EPA cannot simply list infectious waste as a hazardous waste, as they once proposed to do 10 years ago. Put it in a hazardous waste system. You'll get all the things that everybody here today said we need. You'll have standards. You'll have training. You'll have felony penalties, criminal and civil for violations. You'll have a tracking system from cradle to grave.

I don't think that we need to address this problem with just the very tentative program that we've seen the Senate do. They've said New York, New Jersey, and Connecticut. There are wastes that move interstate, and just dealing with those three States is really not going to solve the problem.

It seems to me that by putting medical waste into the Federal hazardous system you'll get the emission standards, and you'll get the handling requirements. You'll get the license facilities, license haulers, all of the notification things that many of the witnesses here talked about the absence of.

The one thing you won't get is the kind of medical labeling of products that District Attorney Holtzman talked about. I think that the authority to do that needs to be looked for in other laws, like the Toxic Substances Control Act, the Federal Food, Drug, and Cosmetic Act, and maybe the Consumer Products Safety Act.

We, today, are able to find a batch of bad drugs and a batch of dangerous foods and notify people. They know what distributor had them. They can't tell you whether you put them in your house, but they usually can tell you which stores were handling them. There's some universal bar code labeling or other kind of product coding that enables that kind of material to be tracked and retrieved. I think that we could use that kind of system for medical products, especially since the disposables are only going to increase unless some interference by Government into the marketplace says that it isn't appropriate to continue and the trend to throw everything away, since we simply can't handle it all.

But apart from that additional kind of labeling, all of the rest of it manifesting, and as I said, enforcement, everything else, would be handled by putting it into the Federal hazardous waste system.

EPA continues to quibble about whether it is in fact hazardous. But the Federal hazardous waste law addresses environmental values as well. We've already documented severe environmental harm this summer. We have a potential for hazard to health. Any prudent public health specialist will tell you that you don't wait until people are sick before you act to protect public health. If you have a potential for it—and that's all that RCRA requires—it's appropriate to put medical waste on that basis and on the environmental damage basis into the hazardous waste system.

It seems to me that it is not an easy solution, and it certainly won't be inexpensive, but it's an available regulatory system that's already there, and everyone knows what the requirements are and how it works. Certainly entities which are already dealing with dangerous substances may already have to meet RCRA requirements.

Some of the hospitals may exceed small generator requirements and have to send some of their toxic materials out as hazardous waste. I didn't hear anybody say that particularly, but certainly hospitals handled radioactive materials. Some of their chemātherapeutic drugs are extremely toxic. Certainly the radioactive materials are supposed to be specially handled. We don't know whether those materials are going in with the other medical waste that has been showing as illegally disposed.

But there are questions that need to be answered, and I really don't think that pilot programs and further educational approaches are an adequate response to the problem that we are seeing this summer.

Thank you.

[Ms. Warren's statement, with attachments and additional comments, may be found in the appendix.]

Chairman WYDEN. Ms. Warren, thank you. What you have said is very provocative.

What are the Federal agencies doing with respect to your suggestion of classifying infectious waste as hazardous waste and plugging it in into that system?

Ms. WARREN. EPA, as I said, 10 years ago proposed to list Federal as hazardous. The statute itself uses the word "infectious" in its definition of hazardous waste, but they didn't issue those regulations in final form when they put out the big one in 1980, the hazardous waste regulatory system. Since that time, they have gone in the opposite direction. They've done a guidance which isn't even specific enough as to best available technologies or recommended temperatures, or anything else, to provide a cookbook kind of guide—I'm not intending any pun—for the incineration of materials that are autoclaving. It's too general, and it isn't enforceable, and it is not a substitute for making sure that the materials are properly handled.

I shudder to think that the suggestion that Mr. Sexton, the sanitation commissioner from New York, just made about waiving the offset requirements and making it easier for hospitals to continue to incinerate onsite. Because the hospitals—I am sure you are going to hear from some hospital witnesses soon—are in the middle of serious cost containment problems and efforts. They presently are documented by the OTA and others as having people who simply aren't trained to handle the kind of technology to operate these incinerators at the temperatures needed to destroy the materials, the pathogens, and also to prevent the formation of dioxins and furans.

There are people in the medical waste industry who sell the technology to hospitals who say they won't pay for the training program. They won't buy the automatic controls because it's too expensive. To simply put the responsibility on them and then not require that the instrumentation be put in place and that the equipment be operated at optimal conditions, I think is, first of all, of great danger to health and the environment, and it's simply not a positive way for any Federal solid waste policy to proceed on this issue.

Chairman WYDEN. We will certainly follow up on your suggestion in that regard.

I would like to ask you a few questions from the standpoint of the environmental considerations of this waste.

Now, waste that's treated, either at the point of generation or by professional waste handlers today—because of the gaps in the system—we really don't know whether that is being done or whether the waste is being rendered harmless, do we?

Ms. WARREN. We don't know it everywhere. I think that the degree of regulation varies. I don't think it's very good anywhere. Some places have pretty stringent laws about it. New York City, for one, is having a problem. They still document violations occurring repeatedly. You've heard that there's a great need for enforcement.

But even if it were being done well in some places, it's an interstate problem, and it isn't being done well everywhere in the country.

We have taken that approach for dangerous wastes in general. That's what the hazardous waste program is. I think we are probably going to move in that direction—more so in solid waste in general. But for medical waste, we don't have that system now; we don't know.

Chairman **Wyden**. Would you say that most of the waste is checked by some governmental body to see if it has been treated to render it harmless or is most waste not checked?

Ms. **Warren**. I don't know the answer to that. I would say from what I've seen that most waste is not checked.

I also think that you have great concern among the people who are handling it who don't want to touch it. If they see a red bag, they don't want to handle it. You have a problem in the danger of having a narrow definition and expecting people to separate out this kind of hospital waste from that kind of hospital waste. I think it's not going to lead us in the direction we want to go because I don't think people are going to want to deal with it.

But we don't have a force of inspectors carefully checking to make sure that it has been autoclaved long enough or that the incinerators are operating properly.

Chairman **Wyden**. Do you see this situation as analogous with toxic waste and the events heading up to Love Canal? Is that a fair analogy, one that you would make at this point?

Ms. **Warren**. I think with respect to the state of regulation of medical waste, we are probably further than we were with Love Canal because we do have a lot of State programs, and the States are beginning to be concerned about it and act. But the major difference, I would say, is that we have a system in place in which this waste could simply be listed and included in that system. We didn't have that when Love Canal first emerged as a problem.

Chairman **Wyden**. Tell me exactly why you think EPA's response, which at this point is primarily to have a tracking system, is insufficient?

Ms. **Warren**. I don't think that is EPA's response. EPA's response in their testimony is, we're going to educate, or we're going to do guidance manuals for inspectors and operators, and that sort of thing.

Chairman **Wyden**. I think they go on to say that they would also support a tracking system, but I think you're right.

Ms. **Warren**. First of all, because it doesn't go far enough. It's only three States, and the problem extends beyond that. But that just addresses keeping the waste off the beaches if it succeeds at that. That doesn't deal with the incinerator problem; it doesn't deal with the sewer problem; it doesn't deal with the autoclaving problem; it doesn't deal with operator training and the operation of the hospital incinerators.

Chairman **Wyden**. I happen to share your view. I think the only thing that you really get out of a tracking system is you help identify the culprits. That clearly is one part of the equation, but you've identified a number of others. I share your view that neither the voluntary educational approaches nor guidelines support the establishment of a tracking system.

Ms. **Warren**. We've had those since 1986. We've had EPA's guidance manual, and the problem appears to be getting worse.

The other thing is that if we ever did get EPA, and possibly with a new administration and a different EPA, we'll see a return to the concern that was reflected in the original proposal to list infectious waste as a hazardous waste.

But we can't have a small generator exemption either, although I know that this subcommittee's concern is impacts on small business, but small amounts of radioactive or infectious material can be very dangerous. I think that a blanket 220-pound-per-month exemption simply on the basis of size is really not appropriate in this situation.

Chairman **WYDEN**. You have been very helpful. Unless you or your associate has anything to add further——

Ms. **WARREN**. There were two other documents that I wanted to put into the record. One of them is referenced in our testimony, although I didn't mention it, which is a blueprint for solid waste management in New York State, but it has recommendations with respect to the management of incinerator ash in particular. Then there's also a very helpful report which you may already have, which the Council of State Governments published very recently on State Infectious Waste Regulatory Programs. It's short, but it covers the results of a survey they made of all the States and the District of Columbia.

I would ask permission to put those two documents into the record.

Chairman **WYDEN**. Without objection, we'll put those into the record.

[The documents may be found in the appendix.]

Chairman **WYDEN**. Ms. Warren, you've been very helpful, and as we continue our inquiry, I know we're going to want to work with your organization. I thank you for your excellent testimony.

Ms. **WARREN**. Thank you.

Chairman **WYDEN**. Our next witness is Mr. Bill Borwegen, director, Occupational Health and Safety, Service Employees International Union, and Dr. Nelson Slavik, American Hospital Association.

If you two gentlemen will come forward. We welcome you. I know it has been a long morning. We thank you for your patience.

You gentlemen are both on your feet and you know it's the practice of our subcommittee to swear the witnesses. I gather you don't have any objection to being sworn today.

Please raise your right hand.

[Witnesses sworn.]

Chairman **WYDEN**. Gentlemen, we've worked with both of your organizations in the past, and we appreciate the cooperation you've given us on this matter as well. We will make a copy of your prepared remarks a part of the record in their entirety. Why don't we begin with you, Mr. Borwegen.

TESTIMONY OF BILL BORWEGEN, DIRECTOR, OCCUPATIONAL HEALTH AND SAFETY DEPARTMENT, SERVICE EMPLOYEES INTERNATIONAL UNION, AFL-CIO, CLC

Mr. **BORWEGEN**. Thank you, Mr. Chairman. My name is Bill Borwegen, and I am an industrial hygienist, a registered sanitarian, and the director of Occupational Health and Safety for the Service Employees International Union of the AFL-CIO.

SEIU represents 850,000 private and public sector workers. We are one of the largest unions in the AFL-CIO and the Nation's largest union of health care workers. A third of our members are health care workers and many are exposed to potentially infectious waste material contaminated with blood and bodily fluids on a regular basis.

For example, when a registered nurse injects a patient with his or her medication, this creates infectious waste in the form of a needle that can later stick a laundry worker or a housekeeping worker, or even a worker that works the incinerator to burn the infectious waste.

A SEIU nurse in Boston was recently stuck by a needle from someone that she suspected had AIDS, but the patient refused to be tested.

A similar incident occurred just last week in San Francisco with a patient that was known to be infected with the AIDS virus.

Both nurses, obviously, are facing extreme anxiety over these situations.

Our union also represents nonhealth care workers, such as janitors, police officers, correctional officers, and park workers with documented occupational exposures from discarded IV drug-user needles, exposure to infectious wastes from inmates, and from many other sources.

For example, an SEIU janitor at San Francisco International Airport recently, while compacting restroom trash with his hands, stuck himself with a discarded IV drug-user needle.

A similar incident just occurred in the past month with one of our janitors that works for the New York Housing Authority. And a prison guard was recently bitten by an inmate who is infected with the AIDS virus.

Now, this is just a small sampling of the types of exposures that we hear about in my office on a weekly basis, and I thought I would share this with the subcommittee to give you an idea of the type of exposures that workers are experiencing in our union.

Specifically, I speak today in support of strong regulatory and enforcement effort to protect workers in the public from exposure to infectious waste. Historically, the Occupational Safety and Health Administration—OSHA—has left the health care industry free to regulate itself. The EPA has some regulations, but enforcement, quite frankly, is almost nonexistent.

If industry was pursuing an aggressive voluntary effort we would not be here today. The conditions needed to justify quick action by the Federal Government to promulgate appropriate regulations, backed up by enforcement, are clearly present. Exposure to infectious waste products simply pose too great a risk to workers in the general public.

Just how significant a risk is posed to workers in the public was more completely realized by our union in 1984 when fear of AIDS transmission first rose by our membership. It was critical that irrational fear be confronted with factual information and that adequate safety precautions be implemented so that health care workers would continue to do their jobs.

We learned that the mode of transmission of the AIDS virus is similar to that of hepatitis B—an occupational disease referred to as "health care workers disease." It is caused primarily by needle sticks, cuts, and other exposures.

While we may speculate and theorize regarding the probability of developing hepatitis B or AIDS from a syringe washed up on the shoreline of New York or New Jersey, the U.S. Centers for Disease Control already have stated that every year up to 15,000 health care workers contract, and another 200 to 300 health care workers die, from hepatitis B alone caused from such exposures to infectious waste.

In addition to contracting the AIDS virus, studies have documented the transmission of at least an additional 18 different pathogens by needlestick injuries. Clearly, this is the deadly evidence to prove that comprehensive infectious waste handling and disposal procedures are not in place in this country.

To try to combat this problem, we've developed our own educational materials, including a pamphlet for health care workers and a much larger book we call, "The AIDS Book—Information for Workers," that has been acclaimed by the CDC as the best information available to train workers that are concerned about infectious disease on the job.

In addition, we've conducted scores of seminars, training thousands of workers, in the United States and Canada. Our efforts only reinforce our efforts that more work needs to be done, that workers are not being provided with adequate training or protection when dealing with infectious waste.

It is clear to us that no single Federal agency can adequately deal with all the issues involved in the proper handling and disposal of infectious waste. However, we believe that three agencies—specifically, OSHA, EPA, and FDA—with the proper commitment to work together could be successful in developing a comprehensive approach to this nationwide crisis. Let me now summarize the responsibilities that I believe that these three agencies must assume.

Chairman WYDEN. Mr. Borwegen, did I hear you to say you also favor a stronger role for the Food and Drug Administration?

Mr. BORWEGEN. That is correct, and I'll get to that point in a second, Congressman.

Chairman WYDEN. All right.

Mr. BORWEGEN. First, I want to talk about OSHA's role. I believe that OSHA must issue a permanent blood-borne disease standard to protect health care workers and other workers when dealing with infectious waste in the workplace. In this vein, our union, in September 1986, petitioned OSHA for such a standard. This petition specified the types of training and protective equipment health care workers need.

It also requested that the hepatitis B vaccine be made available to all high-risk workers free of charge. It's an integral part of the standard.

The need for a permanent standard has also been endorsed by the American Public Health Association and other reputable organizations.

Last summer, after a congressional hearing held by Congressman Tom Lantos, OSHA agreed to begin the standard-setting process and issued an advanced notice of proposed rulemaking to announce the agency's intentions and solicit comments from interested parties.

I'm providing the subcommittee today with a copy of a survey that we've conducted to evaluate infectious disease control practices in the country where we actually surveyed 100 departments—100 health care facilities—and we submitted this information to OSHA as part of their standard-setting process.

Again, the survey highlighted significant problems with both training and the provision of protective equipment.

This subcommittee could provide invaluable assistance to my union and other organizations and millions of individual health care workers who are fighting for adequate worksite protections against infectious disease waste by insisting that OSHA proceed expeditiously to meet their current deadline of a proposed rule by the end of this year—to be followed shortly thereafter by a permanent standard.

Obviously, the cooperation of the Office of Management and Budget in reviewing this standard and putting this process on the fast track is essential to the success of this effort. So that's OSHA.

With EPA, let me just say as background, that other Federal agency action is necessary. Passage of the Occupational Safety and Health Act in 1970 specifically exempted State and municipal employees from coverage that was provided to all other American workers, and only half of the States in the country have chosen to voluntarily confer OSHA protections to these workers.

As a consequence, millions of public employees, including hundreds of thousands of employees in hospitals and other health care facilities in half the States in this country are covered neither by OSHA nor by a State-run OSHA program. For these workers, these hundreds of thousands of health care workers, they have no legal right to a workplace free from recognized health and safety hazards.

To address this situation at least to protect our school workers—we represent about 100,000 school workers—back in November 1983, we actually petitioned the EPA under the Toxic Substances Control Act, as a part of our efforts to protect school workers from asbestos. As a partial settlement to this lawsuit, the EPA chose to cover these unprotected public employees through what is known as their "asbestos worker protection rule." The rule simply confers the OSHA asbestos standard to public employees exposed to asbestos, but is enforced by EPA instead of OSHA, because OSHA does not have jurisdiction.

We believe that infectious waste handling and disposal represents an analogous situation under which the EPA not only should, but is legally required to act to protect these millions of unprotected State and municipal employees. We know, for instance, that a decade ago—as Jackie Warren has just stated—EPA proposed to regulate biomedical waste products pursuant to its authority under RCRA.

In December 1978, the agency published proposed regulations in the Federal Register, and 10 years later there are, in fact, no regulations.

Again, just as the EPA conferred the OSHA asbestos standard to uncovered public employees, we believe that EPA must act using authorities under TSCA, RCRA, or perhaps both, to immediately confer the Centers for Disease Control infectious disease control guidelines to these workers, and then eventually the permanent OSHA infectious disease standard once it has been issued.

Finally, Mr. Chairman, the third agency that we believe has a critical role to play to protect both workers and the public is the U.S. Food and Drug Administration. Studies have shown that the leading cause of hepatitis B and HIV seroconversion among health care workers and other workers is from needlestick injuries. Just this past week in The New England Journal of Medicine, a study was published highlighting the importance of improved needle design, and especially self-sheathing needles, in reducing such injuries to workers and others.

Therefore, we urge the Food and Drug Administration, under its medical device regulatory authority, to study and require the manufacture of safer needle designs to reduce the leading mode of transmission of blood-borne infectious diseases.

It is said that AIDS can be prevented exclusively through voluntary actions, and for the so-called high risk groups such as IV drug users, homosexuals, and promiscuous heterosexuals, this may be true. However, for our Nation's 5 million health care workers and many more millions of other workers at potential risk, they have no choice and are being involuntarily exposed to blood-borne diseases as they struggle to earn a living and a paycheck.

This is one area where Government regulation can have a significant impact in stemming the morbidity and mortality caused by the national epidemic of AIDS as well as from hepatitis B and the many other diseases transmitted through the handling of hazardous wastes.

Thank you very much.

[Mr. Borwegen's statement may be found in the appendix.]

Chairman WYDEN. Thank you, and we appreciate your participation.

Dr. Slavik, we welcome you. We will make a copy of your prepared remarks as a part of the record, and, in the interest of time, I'm really going to have to stick to the 5-minute rule.

TESTIMONY OF NELSON SLAVIK, PRESIDENT, ENVIRONMENTAL HEALTH MANAGEMENT SYSTEMS, INC., AND CHAIRPERSON, AMERICAN SOCIETY FOR HOSPITAL ENGINEERING'S ENVIRONMENTAL SAFETY COMMITTEE, ON BEHALF OF THE AMERICAN HOSPITAL ASSOCIATION

Dr. SLAVIK. OK, fine, thank you.

Chairman WYDEN. Thank you.

Dr. SLAVIK. Mr. Chairman, I'm Nelson Slavik. I hold a Ph.D. in microbiology and am president of Environmental Health Management Systems, and chairperson of the American Society for Hospital Engineering's Environmental Safety Committee.

I am pleased to testify today on behalf of the American Hospital Association, which represents more than 5,300 member institutions and 40,000 personal members. Hospitals are very concerned about the appropriate management of potentially infectious waste, and we appreciate the opportunity to discuss this issue with you today.

AHA shares congressional interest in protecting the health and safety of health care workers, waste disposal personnel, and the public at large, and also the environment.

Recent events, such as the floating garbage barge and the washing ashore of medical and other waste on some eastern shores, have highlighted the problems presented by solid waste disposal in the United States. Media attention has understandably focused on that waste which the public perceives as presenting the most risk—medical waste. But, infectious waste cannot be addressed outside of the context of the larger problem.

The growing volume of solid waste, the diminishing number of disposal options, and the rising concern among the public clearly point to the need for a national strategy on these issues.

With respect to the risks posed by medical waste, three questions need to be examined:

What types of medical waste should appropriately be considered infectious, and how should these be defined?

What is the extent and nature of infectious waste disposal problems?

Third, what steps are needed to address the real and perceived risks of medical waste disposal?

I specifically mention real and perceived risks because both must be addressed if we are to be responsive to public concerns, although each may require somewhat different solutions.

Each of these questions is further addressed in the remainder of this testimony.

First, the issue of the definition of infectious waste. The American Hospital Association feels strongly that the lack of consistent and rational definition of infectious waste for use by Federal, State, and local agencies creates the most significant obstacle to efficient waste management and contributes to public apprehension about the effectiveness of current practices.

Without a universally accepted definition of infectious waste and the categories of waste to be subsumed under that definition, a hospital or other health care facility could classify from 5 percent to 70 percent of its waste stream as infectious, depending on the criteria to be used. Given that the cost of infectious waste disposal exceeds that of general municipal waste by up to 50-fold, the additional expense of treating wastes as infectious must be justified by evidence of the need for greater disease prevention and environmental protection. To date, however, there has been no epidemiological evidence that medical waste causes disease to the community.

The Environmental Protection Agency currently defines infectious waste as "waste capable of causing infectious disease." The agency correctly identifies five factors that "contribute to the risk of introduction of disease." These are:

Presence of a pathogen; sufficient virulence of that pathogen; dose of the pathogen; a portal of entry; and resistance of the host.

Unfortunately, most individuals equate the presence of a pathogen with infectious waste. The presence of a pathogen alone is not sufficient to represent a risk of infection. This concept is difficult for the public to grasp but is essential if risk is to be assessed accurately. All environments, except those maintained under sterile conditions, harbor some population of pathogenic microorganisms. It is important to remember that all the factors I mentioned above must be present simultaneously for disease transmission to occur.

In practical terms, individuals seeking a workable definition of infectious waste generally look to specific categories or types of waste. Therefore, we strongly recommend that the four general categories of infectious waste adopted by the Centers for Disease Control be used by all Federal and State agencies. Specifically, these include:

Contaminated sharps; cultures and stocks of infectious agents; blood and blood products; and finally, pathological waste.

In endorsing the inclusion of the four waste categories, we acknowledge that our rationale for doing so varies according to the degree of risk posed by each grouping. Two of the four categories—contaminated sharps and cultures and stocks of infectious agents—represent the greatest risk of injury or transmission of infection from mismanagement or improper disposal, and strict adherence to disposal guidelines should be ensured.

The second major question I wish to address is the nature of the problem posed by infectious waste. There, again, we know of no epidemiological evidence of disease transmission in the community from improper handling or disposal of hospital waste. Excluding the occupational risk associated with sharps, a recent survey of random samples of U.S. hospitals conducted by AHA and Dr. Bill Rutala of the University of North Carolina, confirms what we know from scientific literature: No cases of disease transmission related to waste disposal—again, excluding occupational needle sticks—have been reported.

Despite the lack of evidence of risk, however, we believe that all generators of medical waste should continue to take appropriate steps to maintain a safe environment.

Hospitals have been extremely conscientious in following recommended guidelines for infectious waste management, and 85 percent of our 441 survey respondents are in voluntary compliance with the CDC guidelines for waste designation, handling, and disposal. In addition, the Joint Commission on Accreditation of Health Care Organizations requires hospitals to demonstrate an effective waste management program. Indeed, a majority of hospitals could be accused of over-management of infectious waste, as opposed to mismanagement.

Third, I wish to address the issues that affect the effective waste management strategies that they can opt to go for. The most significant obstacle to effective waste management is the lack of a uniform definition and, thus, practices across the country are somewhat confusing in this realm. Until this conflict is resolved, it will be difficult to assure that appropriate education and monitoring are being implemented across all areas involved in waste management. To remedy this confusion, we recommend that the EPA develop a model State plan and/or model regulations, incorporating the CDC guidelines.

Consistent guidance can go a long way toward removing obstacles to prudent waste practices. In addition, EPA can play a critical role in educating all parties involved in waste management to ensure that guidelines are fully understood.

Beyond actions to clarify what management practices are appropriate for infectious waste, a serious look is needed at developing a national strategy for handling the growing problem of solid waste. New disposal alternatives need to be identified and current approaches refined so that viable disposal options are not discounted. A number of steps are needed, including:

Greater funding of technology assessment so that appropriate criteria for the use of steam sterilization and incineration are available to State regulators; exploration of the use of regional incineration. Central localized sites could serve the needs of one or more counties while providing cost-effective means of waste disposal. Centralized processing could increase control over waste handling and minimize transportation of wastes; and avoidance of the use of public surface waters—for example, ocean dumping—as a disposal site for any waste. These are inappropriate and dangerous sites for disposal because of the lack of control over the end result of waste disposal.

Will the actions discussed here be adequate to prevent further breaches of proper waste disposal, such as those recently seen on the east coast?

Although these incidents have understandably generated considerable public concern, they fortunately appear to be the rare exception rather than the norm across the country.

We believe that the development of a consistent approach to infectious waste and greater education of all those involved will go a long way toward solving the problem. But, it is important to recognize that some of the most widely reported incidents last summer were linked to small outpatient clinics, which are frequently exempt from State regulations.

Consistent with our argument for refining the definition of infectious waste to four categories, we do not support waste designation on the basis of its source, as would be the case in allowing exemptions for small quantity generators.

If a determination of whether infection is present is based on scientific, epidemiologic evidence, presence of a risk alone should be sufficient to require consistent management controls, regardless of the setting.

Finally, the AHA does not support the implementation of a tracking system for offsite disposal of infectious waste because such a system would be very costly and burdensome, would be unlikely to prevent the infrequent occurrence of gross negligence by unscrupulous waste processors, and would not lead to prevention of disease.

In addition, implementation of a tracking system may cause significant new problems for generators, handlers, and regulators without a recognizable benefit. The sheer volume of medical waste that would be manifested each day would create a tremendous administrative and cost burden on hospital staff dedicated to providing high-quality patient care.

In addition, such requirements could conceivably divert institutions' resources from effective tracking and management of hazardous chemical wastes as required under the Resource Conservation and Recovery Act and OSHA's hazard communication standard.

AHA takes the management of infectious waste very seriously and values the opportunity to present its views to the subcommittee. These issues have generated considerable public concern and must be adequately addressed. We urge that any strategy adopted, however, be grounded in scientific evidence of need and not as a result of perceptions of risk.

We look forward to continuing our work with Congress and Federal agencies in refining waste definitions and improving understanding of appropriate waste management practices. AHA and our affiliate, the American Society for Hospital Engineering, have been very active in working with both regulators and our members on these issues for several years and are eager to resolve the remaining problems discussed today.

Mr. Chairman, I would be happy to answer any questions you may have.

[Dr. Slavik's statement may be found in the appendix.]

Chairman **Wyden**. Thank you very much, Dr. Slavik. Of course, the hospitals and other health-care providers are really in the eye of the storm, and we are anxious to work with you.

Let me start with you, if I might, Mr. Borwegen. I am particularly concerned about the information you have given us about the Office of Management and Budget's meddling with respect to health standards to protect our workers.

Now, as I understand it, 2 years after your September 1986 petition to OSHA for an emergency standard to protect workers from infectious waste, there is not any standard as of today.

Mr. **Borwegen**. That is exactly correct, Congressman. The process is a drawn-out process, and I have yet to understand why in my 10 years of working with OSHA on standards.

It took us 7 years to get a standard for ethylene oxide. It is a chemical used in central supply in hospitals to sterilize heat-sensitive items. There's an entire legacy of OMB involvement and interference in that process that has been documented in a number of congressional hearings.

OMB was involved in the asbestos-school's-rules. They are also involved in this process. OMB stopped OSHA from initiating a survey of infectious disease practices within health care facilities to find out how widespread the problem was.

What was really quite interesting is that the contractor that OSHA had hired to do the survey called us and asked us about our survey and we were, of course, very happy to provide that information. But we asked them, why do you want this information? They said, we can't do our own survey because OMB hasn't approved the survey form. In fact, OMB never approved the survey form, and OSHA withdrew their request from OMB for that survey.

Chairman **Wyden**. So, what you're saying, in effect, is that the Reagan administration refused to let OSHA even gather basic information on the dangers of infectious waste exposures?

Mr. **Borwegen**. That is exactly correct. Recently, under request from Senator Kennedy—Senator Kennedy asked OSHA if they were going to proceed with a proposed rule, and OSHA has gotten back to them and said they will proceed, and that the proposed rule will come out in December.

We can only cross our fingers and hope and pray that a proposed rule does come out in December. It will mark 2 years since we have petitioned OSHA for a standard. As I said, there are up to 300 health care workers dying just from hepatitis B alone in this country. If it was a toxic chemical, we would have had regulations years ago.

Chairman **Wyden**. We're not talking about anything going into effect until December?

Mr. **Borwegen**. That is correct. We are talking about a proposal.

Chairman **Wyden**. We are talking about a proposal.

What they've done now is in effect, and I presume they will go forward with the rulemaking.

Mr. **Borwegen**. Exactly.

I just hope it's not like the proposal that EPA issued in 1978 on infectious waste. As you know, they never acted on that proposal.

OSHA has many, many proposed rules that have never gone into the final standard. Like ethylene dibromide, for instance, I worked on about 5 years ago.

Chairman **Wyden**. What are the specific Federal requirements now that protect workers from exposure to red bag waste?

Mr. **Borwegen**. There are no legal requirements at the Federal level except for the Centers for Disease Control recommended guidelines.

Chairman **Wyden**. But those are voluntary?

Mr. **Borwegen**. That's correct.

Now, OSHA is in the process of trying to enforce those. But again, this only covers private sector workplaces and, obviously, most hospitals are public sector workplaces. They are only covering private workplaces. They are trying to use the general duty clause to enforce inadequate infectious disease control practices.

What we just learned yesterday, is that OSHA is issuing a program directive that will instruct its compliance on how to enforce this program directive in the interim until a final rule comes out. We have learned that they may not be requiring that the hepatitis B vaccine be made available free of charge to workers at risk, and this is extremely disturbing to us. We feel that the most important part of OSHA's authority would be to require the hepatitis B vaccine to be made available free of charge. It cost $125 per treatment for this vaccine, and our members—a majority of them—make less than $6 an hour, especially in the nursing homes, and simply cannot afford this vaccine.

We believe that the OSHA act is very clear that methods of control, such as a vaccination, must be provided by the employer free of charge. Every worker who has developed hepatitis B in the last 2 years and who has died, must rest on the conscience of the Administrator of OSHA.

Chairman **Wyden**. There were 300 deaths last year, as I understand it, due to hepatitis B and other complications?

Mr. **Borwegen**. That is correct.

Chairman **Wyden**. Scientists say that if vaccinated, more than 90 percent of these deaths would have been preventable.

But what you're talking about is something that, if implemented, could actually be a direct help in preventing deaths in this country?

Mr. **Borwegen**. I can only draw an analogy, that if there was a vaccine for AIDS, I'm sure that people would be vaccinated against the AIDS virus.

There's about a dozen health care workers that have seroconverted, and only one or two that have actually developed AIDS that we know about from occupational exposure; but with hepatitis B, again, it's 300 a year, and 15,000 workers get the disease every year. I just don't think that many people realize how significant a threat this is to our Nation's health care workers.

Chairman **Wyden**. I am also interested in the point that you and scientists associated with your organization have made that what is first identified as health problems for workers are essentially the forerunner of what happens in the general population.

Could you elaborate a bit on that?

Mr. **Borwegen**. I guess, obviously, I differ with the previous testimony in that what affects workers in many instances does affect the community. I guess the best analogy I can use is the asbestos in schools situation where we know, for instance, that 10,000 workers a year are dying from asbestos-related diseases because of the asbestos that they applied in buildings and ships years ago. They had very heavy exposures.

No matter how much research we conducted, we were never able to actually document any cases of asbestos-related diseases among children. But this Nation felt that if asbestos is so dangerous, then there must be children dying of asbestos, and we didn't have to count the dead bodies before we protected the Nation's children from asbestos hazards.

I think we have an analogous situation here where clearly if there are 15,000 health care workers getting hepatitis B, and there are also other workers, janitors who are sticking their hands in trash and getting stuck with IV drug-user needles, and people that are working in the Newark Housing Authority that are getting stuck by needles. The organism is an aqueous solution at the tip of a needle. We don't know how long that needle has been in that restroom. We don't know if it has been in there for a minute or for 23 hours and 59 minutes, because they clean that restroom once a day. So it's very possible that organism is still alive. What I am saying is there's no reason to assume that a member of the general public would not be stuck by that needle.

I would hate to think that we would have to wait to count victims, people in the community that have developed infectious diseases, for us to take action.

I guess it's fine to start looking, to conduct research. We haven't even started looking. But also, I think prudent public health policy would dictate that we follow the same course as we have done with asbestos in schools, and not wait for dead children, but to proceed expeditiously in a prudent public health manner.

Chairman **Wyden**. Thank you for your testimony. Let me move on in the interest of time.

Dr. Slavik, because there is this confusion with respect to how infectious wastes are defined and are classified, some health care facilities classify their infectious waste differently than others. Given that fact, isn't it possible that some infectious waste could be mistakenly mixed with the general solid waste stream?

Dr. **Slavik**. Again, it depends on how the definition is to be applied. If one looks at the definition that the USEPA has put into their guidance manual back in 1986, you are looking at those four criteria being fulfilled before a disease transmission can occur. That's the issue at stake here.

Again, the presence of pathogen alone does not necessarily make that waste capable of transmitting disease. Every hospital has an infection control committee, and that committee will make the determination of whether that waste will be infectious or not, based on State regulation, based on maybe municipal or local regulation, and they add to that, in terms of what they perceive as being a threat to their own employees or a threat to the community.

Therefore, you do get a fluctuation in definition, even within a State, based on how that infection control committee operates.

That's been one of the real issues, because once that waste leaves the hospital, because it is in a red bag, or because it is even just red, or looks like it may have had patient contact, it's being perceived by the public, by the haulers, by the landfill operators, as being really infectious. That is what is known as emotional paranoia. The red flag goes up, and people become afraid of it.

So, from that essence then, hospitals have broadened their definition of what constitutes an infectious waste to try to alleviate that public concern, to get it out of the main general waste stream. But, you're right, it is a problem.

Chairman **Wyden**. I appreciate your saying that it is a problem. I think it stems from the confusion with respect to how infectious wastes are classified. The Federal Government's role, as you and others have pointed out, is voluntary, and then you have this crazy quilt of State laws out there—some of them perhaps good; others not so good.

My second question is, wouldn't this variety of State laws contribute to the possibility that some infectious wastes are mixed with solid waste and are getting into the general waste stream?

Dr. **Slavik**. It's a possibility. Again, going back to definition—going back to segregation practices—one of the real issues right now are the universal precautions that the Centers for Disease Control put out last year which says essentially that those patients that are going to be viewed as potentially a carrier of AIDS or hepatitis should be handled appropriately, and given proper personal protection.

But CDC also goes on to say in that statement back in August 21 of last year, that it's prudent not to call those wastes that come from those patients as infectious waste, because transmission of disease, of course, from those perspectives, is just not there.

Chairman **Wyden**. I think there was a writeup in the Washington Post recently, which mentioned that 83 hospitals were cited for putting infectious waste in the regular garbage stream.

Do you know which hospitals these are, and what steps are being taken by the Association and the State affiliate to minimize the recurrence in the future?

Dr. **Slavik**. Again, I'm not privy to any of that information—which hospitals are at fault; if they are at fault. It goes back to the definition of what constitutes infectious waste, how it deems it as being infectious waste by his or her own definition versus that definition of the hospital. There's where the dichotomy really stands.

So, from that perspective, there may be, again, that definitional problem.

Chairman **Wyden**. As I understand it, it was the State that made a determination that this was going on and imposed penalties on the facilities for doing it.

Dr. **Slavik**. OK.

Chairman **Wyden**. Let me just ask, because you might not have seen the writeup, if the Association would follow up on those specific facilities—and we'll make sure we're talking about the same newspaper account—and report back to the subcommittee. As I say, I don't know any more about that situation than what was specifically in the paper. But there you had a case where, under the State law, these wastes were determined to be infectious and were getting into the regular garbage stream. And the hospitals were being penalized for it.

I assume that in that, the Association would be very much opposed to that kind of conduct on the part of those hospitals.

Dr. **Slavik**. Definitely so.

Chairman **Wyden**. Has AHA ever suggested that its members' hospitals go to some kind of specific uniform marking system for medical waste? Given the confusion that we have at the State level and the voluntary guidelines, have you all made any recommendations to your members that they go to a uniform marking system?

Dr. **Slavik**. In answer to that question, the American Hospital Association, through its Society for Hospital Engineering, puts on numerous workshops, and papers, and documents. From that perspective, we talk about packaging, segregation, and labeling, and make recommendations in those workshops and in those publications. One has to recognize, however, we can put out recommendations like that, but hospitals still reside in States that have certain regulations, and they have to abide by those regulations even though we wrote into a document that we would like to see this also put in place.

So, we have to recognize that States have regulations that have to be conformed with.

Chairman **Wyden**. But you have uniform regulations of your own for these wastes, and you have encouraged your members to adopt those?

Dr. **Slavik**. In terms of uniform regulations, as far as labeling concerns go, we like to see segregation with color coding of bags. Red bags, for instance, are one mechanism. Having the biohazard symbol on that bag and/or having the words "infectious waste" or having the word "biohazard" are indicators that this waste is a separate waste stream and indicates that this waste should be treated as an infectious waste.

Those are normally universally regarded by EPA-CDC as being appropriate, and we go by those particular standards.

Chairman **Wyden**. Hospital incineration of medical wastes has now come under more criticism on the grounds that these incinerators may no longer be effective for burning infectious waste.

Is that a view that the Association shares?

Dr. SLAVIK. When you look at the disposal and treatment options for infectious waste, many avenues are open. Two primary mechanisms for, of course, taking care of these waste streams are incineration as well as steam sterilization. In both instances, because of the time parameters and because of the temperature parameters, you are looking at sterilization of that waste load. From the incineration standpoint, you are burning these materials at extremely high temperatures in the primary chamber and further subjecting the effluent gases to a higher temperature in the secondary chamber in the type of incinerator that the American Hospital Association and ASHE recommend for hospitals.

The time temperature parameters are definitely there to kill pathological organisms. With regard to infectious waste in general, however, I think that the real criteria has to do not with the biological aspect for incineration, but it's basically the effluent gas discharges that we are concerned with. We would like to see clean ethylene gases, and we would like to see some criteria develop that call for the type of technology that's required to bring those ethylene gas emissions down to a reasonable level that would minimize any type of public concern.

Chairman WYDEN. You would like, then, the Environmental Protection Agency to publish requirements or guidelines for upgrading these technologies?

Dr. SLAVIK. We would like to see that, again, based on risk assessments, not just to go and say, we have 50 part per million requirement for HCL. It needs to be based on something that has some substance behind it. What happens is, you go to a regulation that prohibits now that option being fulfilled by the hospital. The hospital needs then to send that waste out of sight, further burdening the transportation system; further burdening even the waste haulers and disposers who are out there right now.

Chairman WYDEN. With respect to the plastic content in hospital waste, doesn't that mean that a lot of hospitals are going to have difficulty meeting State air emission standards in the future?

Dr. SLAVIK. Not necessarily so. One has to look at plastics in terms of just what type of plastics they are. Not all plastics are created equal. We have polyethylene, we have polypropylene, we have polystyrene, and we have the polyvinyl chlorides. It's the polyvinyl chloride type of plastics that I think raises the most concern, and that is because of the chlorine content within that plastic. From that perspective, we have a potential emissions problem if the EVC plastics are in a great amount in that particular waste load.

Chairman WYDEN. Isn't that particular product used widely by hospitals?

Dr. SLAVIK. It's used widely in packaging, not necessarily in the product itself, and that may be part of the problem—the fact that you have numerous polychloride packaging that will end up in the waste stream of the hospital. Many hospitals not only burn their infectious waste in the incinerator, they burn their general waste stream. So, from that regard, you may actually be putting out a higher amount of HCL in the emissions by virtue of the packaging product versus the product itself.

Chairman **Wyden**. At this point, does the AHA think that under any scenario there's going to be more offsite treatment of infectious waste?

Dr. **Slavik**. I think you have to look at it from a number of perspectives. From the perspectives of State regulatory agencies, it's somewhat in a quagmire of what type of regulation they wish to write for their State. Also, in terms of what requirements and regulations that they wish to implement. It puts a real burden on hospitals to try to incorporate incineration in their waste disposal option. Therefore, that waste then ends up going offsite. It goes down the road, and is subject to potential problems with transportation as well as ultimate disposal. That's the real concern.

Hospitals would like to go to incineration being self-sufficient to be able to handle their own materials. But given the state of regulatory activity and some of the confusion that exists in States today, it has prohibited that option within a hospital.

Chairman **Wyden**. You all would agree, though, with the OTA finding that offsite treatment of these wastes causes significantly more problems?

Dr. **Slavik**. I would. It can contribute to significantly more problems because you lose the control over that waste stream once it leaves the dock of the hospital itself, and that would be the real case in point.

I think the call for regional incineration by which you don't have to travel long distances—you may actually be a part of a corporation. The hospitals may form a group that they can put in a regional incinerator to handle the biomedical waste out of their hospitals as well as public health clinics and the small generators that reside within that community to alleviate the problem of the small quantity generator.

Chairman **Wyden**. What are the potential liability problems that hospitals face with offsite treatment?

Dr. **Slavik**. There's a liability problem in terms of denoting infectious waste as a hazardous waste. That's one of the real issues, whether to put infectious waste under subtitle C or put it under subtitle D. Calling it a hazardous waste raises a tremendous burden of liability. It almost ensures that you won't be able to procure insurance, and if you can, it will be unaffordable. So, at that point there is a great liability.

I think most of the liability right now with regard to infectious waste as a special waste is that of public perception, public relations, a public imaging problem, more than anything.

Chairman **Wyden**. Thank you both.

Dr. **Slavik**. Thank you.

Chairman **Wyden**. We look forward to working with your organizations.

Our next panel, Dr. Lester Wright, deputy director, Oregon State Health Department, Salem, OR, and Mr. Allen Dusault, Jr., Massachusetts Department of Environmental Quality Engineering.

Gentlemen, we welcome you both. It is particularly good to have a witness from home. Doctor, we've enjoyed working with you in the past.

It's the practice of the subcommittee to swear all our witnesses. Do either of you gentlemen have any objection to being sworn today?

Chairman WYDEN. Please rise and raise your right hand.

[Witnesses sworn.]

Chairman WYDEN. Gentlemen, we will make a copy of your prepared remarks part of the record in their entirety, if you all could keep within 5 minutes. I know we are going to have some votes shortly on some legislation affecting Hanford, Dr. Wright, something I know your department has been very interested in. It's going to be a tight afternoon.

We welcome you. Let's begin with you, Dr. Wright.

TESTIMONY OF LESTER N. WRIGHT, M.D., DEPUTY ADMINISTRATOR AND STATE HEALTH OFFICER, STATE OF OREGON

Dr. WRIGHT. I'm Dr. Lester Wright, the deputy administrator of the Oregon health division and State health officer for the State of Oregon.

The summer of 1988 may be remembered, in the future at least, for a time when wastes that appeared to be biomedical, washed ashore in some of our most visible beaches and captured our interest. But it's not the first time we should have been alerted to the potential problems.

In Oregon our attention was focused on this 2 years ago. Garbage haulers threatened to refuse to deal with these wastes. They were concerned for their safety, what with AIDS on everybody's mind. Then some business-suited gentlemen got splashed when they got too close to the working edge of the garbage transfer station at a time when a dozer was going by. It was blood. It turned out that there were no risks. The blood had been autoclave sterilized previous to that, but it got their attention and it got our attention.

So, in Oregon we used an approach that we frequently use, and that is under our general powers of the Health Division, we convened a task force to try to develop solutions. Our group included not only epidemiologists from my health division, but representatives of the Hospital Association, the Association of Practitioners for Infection Control, the Department of Environmental Quality, which in Oregon has responsibility for solid waste; the Oregon Sanitary Service Institute, that's a professional organization of garbage haulers; and the Teamsters Union.

The task force considered the magnitude of the risk, explored the existing laws and rules, and proposed a plan for dealing with the plan. That plan is substantially in effect now and the document produced is being printed as we are here today.

I would like to clarify from earlier testimony that vials of blood in the flotsam were said to have tested positive for AIDS. They tested positive for antibodies to the presence of AIDS, not to the AIDS virus. It's most unlikely that the virus would have been viable in those, and I think that clarification probably is useful. Hepatitis B may be a different issue.

Fortunately, the risk to those coming in contact with trash is apparently relatively small. Few, if any, disease outbreaks have been traced to contact with solid waste to this time, as you've heard.

But according to the National Institute for Occupational Safety and Health—NIOSH—people who deal with solid waste have occupationally related injuries seven times more often than does the average worker in this country. Most of the risk is from injury rather than illness, but all waste, including that from private homes, potentially contains disease causing organisms.

In fact, in limited studies which have measured microorganisms associated with solid waste from various sources, it has been found that household waste is 10 to 10,000 times more contaminated than that from hospitals. A number of pathogens were found more commonly from household wastes. Where in household wastes? In disposable diapers, in contaminated facial tissues, blood-contaminated tampons, sanitary napkins, bandages, home used syringes and needles, all of those.

Household waste is infectious because most people who are ill are ill at home. Most people who develop infections are never hospitalized, and if they are, it's at a time when they are well past the most infectious time of their illness.

In Oregon, 89 percent of hepatitis cases are cared for at home and 99 percent of persons potentially infectious with HIV are living at their homes in the communities.

Almost any garbage can or dumpster in the city can contain used syringes and needles. Certain waste products are considered to be a greater risk of carrying disease-causing organisms and require more stringent disposal practices.

Health care institutions are required to treat these items in specific ways to lessen the risk for them following the recommendations of the Centers for Disease Control. But treating solid waste from health care institutions, while important, does not reduce the risk of exposure to the same organism in the general waste.

Several years ago, NIOSH published a handbook, Hazard Recognition and Prevention in Residential Waste Collection. It recommends specific standards for those who handle solid waste, including hard hats—remember, injury is the most common problem—protective eye gear, skin protection by coveralls, good hand protection by leather gloves, boots that won't be easily punctured, and masks if they work in a dusty area.

In addition, because of potential hazards, good hygiene is of great importance to their health. If you think these recommendations make sense, are obvious, surely are being followed, then you obviously have not seen sandal-clad people in shorts handling garbage, as they still do.

In Oregon, following these guidelines is part of our plan.

Solid waste is a problem that extends obviously beyond State boundaries; whether it is barged from one place to another or shipped by land, it often crosses State lines. As nearby landfills fill up, we in Oregon, as elsewhere, are shipping our solid waste further. Oregon, and possibly southwest Washington, will be shipping our garbage up into eastern Oregon.

Last week, I was down in central and eastern Oregon and heard about plans for a regional incinerator for biomedical wastes located in central Oregon. So, it's something that's coming home to us there as well.

The approach to safety obviously varies by State and local jurisdiction. That isn't necessarily bad, if at least minimum standards are met. But that's not the case at present. It was recently reported that 11 States have no statutory controls over biomedical wastes, and some that do have them, have little or no enforcement available.

The problem of the surreptitious dumping by some illegal dumpers is a far wider problem than that of biomedical and infectious waste. There's no question about that. As options for the disposal of solid waste decrease, the temptation to illegally dump will continue to increase, and that will include biomedical waste.

That has the risk of bringing each of us into contact with potentially hazardous waste. Ways, including a manifesting system and adequate sanctions to deter, must be found to stop this surreptitious dumping, whether within States, across State lines, or national borders. That must be done not only to protect the environment in general but to keep the public from contact with solid waste.

Health care institutions are not the greatest risk at present. Licensed facilities are required to separate waste and contain and sterilize it now. That's one of the areas that our inspectors do note when they inspect hospitals and other health care institutions. But a greater risk is the small generator of infectious waste—a small office, laboratory, household. Some of these could and should be included under the same regulations as larger health care facilities. Obviously some, such as households, cannot.

EPA can regulate biomedical waste under RCRA, or it can require States to adopt at least minimum standards.

We will never be able to fully alleviate the problem at the source. The dumpster on the school grounds is still going to have blood-contaminated used syringes and needles in it. It's better there than on the school grounds and the playground.

What we have to do is universalize good safety and hygiene practices in dealing with all solid waste in order to have safety. Just as universal precautions are required of all health care workers if we are going to protect against blood-borne diseases such as hepatitis B and HIV, so we must require and routinize standard safety practices for those who work with solid wastes. Those could be rapidly adapted from the NIOSH recommendations and could be required by OSHA.

The combination of greater, more uniform source control, measures aimed at tracking and stopping surreptitious dumping and standard safety practices for solid waste workers could significantly help protect from potentially infectious and biomedical waste.

[Dr. Wright's statement may be found in the appendix.]

Chairman Wyden. Gentlemen, we are having some votes in the Commerce Committee, and I'm going to be gone for about 15 or 20 minutes. Let me, if I might, ask you a couple of quick questions, Dr. Wright.

Dr. Wright. Certainly.

Chairman Wyden. As I understand it now, Oregon does not have any controls, regulations, or restrictions over these biomedical wastes, but you're just now working on a plan to adopt some.

Dr. Wright. We have requirements for the generators of them in licensed facilities, and that's it.

Chairman WYDEN. But there are a great many that are not licensed?

Dr. WRIGHT. That is correct.

Chairman WYDEN. OK.

Now, one of the principal concerns that I understand you had in your discussions with the staff is that you're concerned that other States are going to send their medical waste to Oregon; is that correct? If so, perhaps you could elaborate.

Dr. WRIGHT. That is correct. As we develop regional landfills up in eastern Oregon, as we talk about regional incinerators in central Oregon, that's not going to be limited just to Oregon waste. We can have some control over what happens with the generators and the processors of it within the State. But as it comes in, we'd like to know if there's the same control being done there.

Chairman WYDEN. But as of now, there are no regulations?

Dr. WRIGHT. That is correct.

Chairman WYDEN. So, if we're talking about medical waste being shipped up through the Columbia Gorge in wintertime on those icy, slick roads, as of now there aren't any regulations on the transportation in that kind of fashion?

Dr. WRIGHT. That is correct, and they're talking about barging or rail traffic as well up the Gorge.

Chairman WYDEN. So, we're talking about barging and rail on the Columbia. We're talking about moving it up those roads, possibly during pretty perilous weather conditions, and there are no controls at this point, and one of the reasons that the State wants the Environmental Protection Agency involved in trying to put in place some controls is to deal with these situations.

Dr. WRIGHT. That would be very useful.

Chairman WYDEN. OK.

Gentlemen, if you will excuse me, I am going to pledge no more than 15 minutes. This has been a really hectic day. You all have been very patient. We will convene in about 15 minutes.

[Recess.]

Chairman WYDEN. The subcommittee will come to order.

When we stopped, we were in the midst of completing the testimonies of Dr. Wright and Mr. Dusault.

Gentlemen, first of all, let me apologize to you for the delay. We are marking up a good portion of the Congress' work in the Energy and Commerce Committee on very important health issues, so my apologies.

We look forward to your testimony, not only because it's good, but because it will let me catch my breath.

Mr. Dusault, let's go right to your testimony.

TESTIMONY OF ALLEN J. DUSAULT, JR., ENVIRONMENTAL ANALYST, EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING, COMMONWEALTH OF MASSACHUSETTS

Mr. DUSAULT. Thank you very much.

I'll try and be brief. Let me start by giving just a brief overview of some of the problems I think we've been having in Massachusetts, but let me start by giving some statistics.

Massachusetts generates approximately 50,000 to 60,000 tons per year of biomedical waste, and that's from regulated health care facilities. Approximately 10,000 tons per year is infectious waste. Those figures would likely be doubled if we included the unregulated health care facilities—dental clinics, doctors offices, research laboratories, and other facilities that are not now required to follow our infectious waste regulations.

Disposal of regulated infectious waste occurs most frequently onsite at the hospital or health care facility where there's an incinerator available. Hospitals and health care facilities without incinerators most often dispose of their infectious waste either out of State or at one of two commercial infectious waste incinerators in Massachusetts.

Some infectious waste transport out of State. It goes as far north as Quebec, Canada and as far south as South Carolina.

In terms of regulation of our health care facilities and disposal facilities, there's primarily two State agencies involved—the Massachusetts Department of Public Health, which is responsible for regulating infectious waste at the health care facilities, and the Massachusetts DEQE, or the Department of Environmental Quality Engineering, which I represent. We regulate the transfer stations, processing operations, incinerators, and disposal facilities.

Currently, there's still a bit of confusion about appropriate requirements for managing infectious waste. Let me just say that Massachusetts, I think, has some of the better infectious waste management regulations in the country. They are still in some ways deficient, and, unfortunately, there's still a lot of confusion. Part of this confusion stems from the Federal RCRA law, which defines infectiousness as a characteristic of hazardous waste. EPA, on the other hand, has not recognized infectious waste as a hazardous waste.

As a result of the opportunity for interpreting infectious waste to be a hazardous waste, there has been some disagreements within the State as to how to classify, for example, a commercial infectious waste incinerator located offsite to a hospital.

Recently, my department attempted to clarify the status of infectious waste facilities ~~by classify~~ing disposal and handling facilities as solid waste facilities, and declaring infectious waste to be a special solid waste. However, some municipal officials, eager to exclude commercial infectious waste facilities from their cities and towns, and being instrumental in the siting process to clear these facilities, have labeled these facilities hazardous waste facilities which are subject to stricter siting requirements.

Their declaration is primarily based on EPA's definition which they used to justify calling these facilities "hazardous waste facilities."

In any case, we haven't had any new hazardous waste facilities sited in 6 or 7 years. As a result, we have a capacity shortfall.

We also have a State legislature that has been looking at new legislation to control infectious waste. One proposed bill required that all infectious waste be incinerated and not allowed the option of steam sterilization or autoclaving, which currently about 10 percent of our health ~~care~~ facilities use.

Because we have an incinerator capacity shortfall, if you will, we also have a landfill capacity shortfall. Being an exporter of infectious waste, should the proposed legislation, which requires incineration, become law, we will be further shifting the burden of our disposal of infectious waste to out-of-State facilities.

Most recently I've heard that South Carolina, which is one of the States that receives much of our infectious waste, is considering legislation to limit or preclude out-of-State infectious waste. If Quebec, Canada, which is the location of another incinerator that takes Massachusetts waste, does likewise, we could be in serious trouble.

Let me point out, about 2 years ago we already had a serious problem with disposing of some of our infectious waste. We had an emergency of sorts when some of our incinerators and landfills refused to take any more infectious waste—I should say red bag waste—based on whether it was autoclaved or not because of the AIDS problem, and health concerns, and whatnot.

That led to some serious, or potentially serious, health problems. We had garbage rotting in the streets for up to a week. We had hospitals not knowing what to do with their waste. It was a situation that was eventually solved, at least to some degree. But it really left a permanent scar, in a sense, on hospital waste management and what options were available.

Recognize that to the extent we're using incinerators in Massachusetts, the primarily older on-site hospital incinerators that are not clean-burning, contribute substantially more pollutants than newer state-of-the-art facilities certainly would.

Continued operations of many of these hospital incinerators thus poses some public health risks. As we shut these older facilities down, our capacity shortfall is likely to get further squeezed.

We are thus caught in a dilemma of having to rely on fewer and fewer disposal facilities, while finding it difficult to site new state-of-the-art facilities. Clearly, we need new disposal facilities.

We also have some other problems. I guess some of the speakers earlier alluded to problems of medical waste washing up on beaches and whatnot, and we have our share of that. We have a lack of enforcement capability. We have the anecdotal incidences of children playing in dumpsters that have been found to have infectious or potentially infectious waste in them. We have different State agencies not working in a coordinated fashion that I think ideally we would like to see. Sometimes there's competing interest involved.

To bring things to a conclusion, ultimately, I think, a Federal role is needed to provide a coordinated approach to resolving some of the infectious waste issues facing Massachusetts and other States. However, it is important that any legislative or regulatory initiatives be pragmatic, flexible, and responsive to real, not just perceived, public health threats.

Thank you.

[Mr. Dusault's statement may be found in the appendix.]

Chairman WYDEN. Thank you very much, Mr. Dusault.

Let me back up because it was a while ago when we began the questioning of Dr. Wright. Do we have any idea of the tonnage of biomedical waste generated each year by the State of Oregon?

Dr. Wright. I don't have any data on that, I'm sorry.

Chairman Wyden. Are you concerned that right now health care providers are not taking adequate steps to sterilize medical wastes in the State of Oregon?

Dr. Wright. I think that in the licensed facilities that is not a large problem. I can't say that it doesn't happen occasionally. But I think by and large in licensed facilities that is taken care of. Large clinics, small laboratories, other generators, definitely it isn't being taken care of.

Chairman Wyden. In large clinics, small laboratories, and in the unlicensed facilities in the State of Oregon?

Dr. Wright. That's correct.

Chairman Wyden. Are there many of those?

Dr. Wright. That's correct.

Chairman Wyden. Any idea how many? Hundreds?

Dr. Wright. As I said earlier, every household is a potential generator of medical wastes.

Chairman Wyden. But I'm talking about medical providers.

Dr. Wright. We're talking probably still in the area of thousands.

Chairman Wyden. In the State of Oregon?

Dr. Wright. Yes.

Chairman Wyden. Those are medical wastes that, based on what the State now knows, are not being sterilized or treated?

Dr. Wright. That's correct.

Chairman Wyden. OK.

Now, just to make sure I understand this transportation issue with respect to our State, because it sounded pretty frightening. We have no rules on transportation at all with respect to moving medical wastes in the State of Oregon. So, when you talk about those barges, when you talk about moving up the Columbia River Gorge, there are no rules governing the transportation of those wastes?

Dr. Wright. They are regulated as well or as little as any other waste.

Chairman Wyden. But these wastes aren't regulated at all. That's what we've essentially learned today.

Dr. Wright. No differently from any other, that is correct.

Chairman Wyden. How serious a problem do you think illegal dumping is in Oregon?

Dr. Wright. Illegal dumping of biomedical waste is probably not a large problem at this point. We'd like it not to become that. We're concerned that as it becomes more expensive and more difficult to get to a landfill it could be a bigger problem.

Chairman Wyden. And that's why you're concerned about the lack of onsite options. You then feel that this could encourage illegal dumping in the State of Oregon?

Dr. Wright. Yes.

Chairman Wyden. The only other question I have for you at this point, Dr. Wright, is the State of Oregon now feels that the Federal Government should take the lead in establishing some clear guidelines for handling these materials. Is that correct?

Dr. Wright. We feel it would be very useful to have at least minimum guidelines applicable to all; yes.

Chairman Wyden. What has been the response of the State in terms of trying to get these guidelines—this information—from the Federal Government? Are you satisfied with the Federal Government's response?

Dr. Wright. We think it could have come a long time ago, and isn't there yet.

Chairman Wyden. Thank you.

Mr. Dusault, in the State of Massachusetts do you have a problem with hospital infectious waste being mixed in with the regular solid waste stream and being handled as regular refuse?

Mr. Dusault. It's hard to say because a lot of it, to the extent it occurs, doesn't necessarily show up. Sometimes you get landfill operators saying they found body parts and whatnot. Clearly, at that point it's identified.

But because of the ambiguities in defining what constitutes infectious waste, there's been instances where blood products and whatnot have gone to landfills. The question is, was it sterilized? Is it really an infectious waste? That complicates the question.

But there has been some mixing of infectious waste in a noninfectious waste stream as well as some illegal disposal.

Chairman Wyden. How does the State of Massachusetts try to prevent the mixing of infectious waste with solid waste?

Mr. Dusault. There are inspections of hospitals and whatnot. I don't know if that has been an adequate response to the potential or the actual occurrence of mixing of the infectious waste in the noninfectious waste stream. Personally I feel that's one of the most problematic areas to address.

Oftentimes, I've heard people say, the nurses aren't properly putting their needles in the right place, and the blood products. However, I've also heard doctors really are sometimes more careless when it comes to those types of things. They're in the operating room doing some type of medical surveillance or work of some type and not paying attention to where they are disposing of the bloody bandage and whatnot, although, traditionally, people have looked to the lower paid workers. I think it's a problem throughout the institutions, and to the extent it's a problem, it's difficult to say, but I think it's there to some degree.

Chairman Wyden. Has your State had a problem where red bag hospital wastes were piling up at landfills and other disposal facilities wouldn't accept this refuse?

Mr. Dusault. Yes; we have had that problem, and we've had it occur on several different occasions. It has posed some very serious public health threats where the garbage sits or the infectious waste sits overnight, or sits for days. We had that happen, especially in warm temperatures. You have complaints from neighboring areas. But to the extent that children, or pets, and whatnot have access to that type of waste, it's a serious problem when that happens.

Chairman Wyden. Medical wastes were sitting around when the temperatures are warm?

Mr. Dusault. That occurred, at least in one instance where it happened for, I think, almost a week. We had a situation where landfills and incinerators—the commercial waste incinerators refusing to take any hospital waste, just flat out, and that was a very serious issue.

Chairman **Wyden**. I think the only other question that I would like to ask and which is similar to that asked of Dr. Wright, does the State of Massachusetts, like the State of Oregon, believe that a comprehensive Federal policy would help prevent these kinds of problems?

Mr. **Dusault**. I think it would be certainly useful to provide us with direction. Right now we face an order of magnitude, larger costs for disposing of our infectious waste in our solid waste stream, at least that much. Right now we're spending $50 to $100 a ton for solid waste and something like $1,000-plus for infectious waste. We don't have the ability, or it has been difficult to site infectious waste disposal facilities in Massachusetts because of the ambiguities of the current Federal approach.

We need assistance on enforcement initiatives. To the extent we have illegal dumping, it's difficult to take enforcement action that fines heavily the dumpers. So, I think it would be very useful to have a Federal role in the whole situation.

Chairman **Wyden**. One of the reasons that I thought this panel would be helpful is that one of you is from a State on the east coast of the United States, Mr. Dusault, where you've already had the problems. Dr. Wright, from my own home State has told the subcommittee we don't have those kinds of problems yet with medical waste, but there are some concerns that if we don't act we're going to have some problems. Already in Oregon we've got problems with respect to the transportation of these materials through our State.

Both of you have given us very helpful perspectives on how an individual State deals with this matter, and, certainly, I'm going to want to be in touch with both of you in the days ahead.

Let me just say thank you for your patience, given the fact that it's been such a hectic day, and we will excuse you at this time.

Mr. **Dusault**. Thank you.

Dr. **Wright**. Thank you very much.

Chairman **Wyden**. Our next panel, Robert Shaw, vice president, Browning-Ferris Industries, Houston, TX and Eugene Wingerter, executive director, National Solid Wastes Management Association.

We welcome both of you. We thank you for your patience. You're both on your feet so you're aware of the practice of the subcommittee. We swear all our witnesses, and I gather neither of you gentlemen have any objection to being sworn today.

Please raise your right hand.

[Witnesses sworn.]

Chairman **Wyden**. Gentlemen, welcome. In the interest of time, I am going to adhere strictly to the 5-minute rule in terms of your opening statements, so we can have some time for questions before I have to vote again. Let us begin with you Mr. Shaw.

TESTIMONY OF ROBERT B. SHAW, DIVISIONAL VICE PRESIDENT, BFI MEDICAL WASTE SYSTEMS, BROWNING-FERRIS INDUSTRIES

Mr. **Shaw**. Thank you. Good afternoon, Mr. Chairman, and members of this subcommittee. My name is Bob Shaw, and I am the divisional vice president for the Medical Waste Systems Division of Browning-Ferris Industries.

Mr. Chairman, before proceeding with my abbreviated oral statement, I would request that my written testimony be entered into the record in full.

Chairman WYDEN. Without objection, so ordered.

Mr. SHAW. As you know, BFI is the Nation's leader in the waste service industry. BFI is the single largest company in the field of biomedical medical waste collection, treatment, and disposal, with operating locations currently in 42 States.

This hearing could hardly be more timely. The daily news reports from the east coast beaches are revolting. I believe we, at BFI, are particularly offended by the current crisis atmosphere because we know that the problem of haphazard infectious waste management is utterly avoidable.

I will touch on four points that are critical to discussion of the infectious waste issue. First, what is the nature of the problem?

Without question, it is not a problem of oceans only by any means. The problem is that generators of infectious waste have typically not had the option to ensure the safe disposal of their infectious wastes. The mismanagement of infectious waste has become an issue within the past 5 years for two main reasons. There has been a dramatic increase in disposables throughout the health care industry, and there continues to be a major trend for providing health care services away from hospitals, at outpatient clinics, surgical centers, and the like. Hospitals typically have had onsite treatment. These new, smaller health care providers have no onsite option. The local dumpster has become the only convenient disposable option. Without requirements that the generator follow special handling practices, medical waste will not receive the attention it deserves.

We in the service industries confront the unfortunate consequences of such practices, from children playing doctor with discarded needles, and tossing blood bags at each other for fun, to amputated human limbs casually put in a dumpster that arrive in our landfill, and, of course, the constant risk to BFI employees throughout the regular solid waste handling system.

Second, what can be done to manage the problem?

To be effective, efforts to regulate the management of infectious waste must be sweeping. They must reach all possible generators. This means that the dentist cannot simply put his used needles into a plastic bag, because they are as capable as injuring the hauler as are the used needles from the hospital. Regulations must reach all of the truly noxious kinds of infectious wastes.

One solution, which would be extremely expensive, would be to require all generators of infectious waste to have all of their waste handled specially. We think the better view is to have infectious waste generators specially handle just that portion of the waste stream that could pose problems, such as body tissues, needles, scalpels, and laboratory cultures. Generators should also be required to see that the waste is either incinerated or steam sterilized.

Third, how are the States doing?

Efforts at the State level to address the infectious waste problem have been at best mixed. Most do not cover the full range of generators nor the full range of noxious wastes, and many States have exemptions for onsite facilities, typically hospitals, the very facilities that tend to be located in urban areas and often use inadequate equipment for waste incineration.

Some recent proposals, even at the Federal level, have looked at tracking as the ultimate solution. Tracking is important. BFI applies and reads a bar code to each container at the generator's facility to identify the origins of the waste and the time of pickup and disposal. But tracking alone is inadequate, if there is no requirement for infectious waste treatment.

A copy of a model infectious waste bill has been submitted for the record with our testimony.

Finally, what can Congress do? For its part, Congress should recognize infectious waste as a special waste—treated not as hazardous waste nor a regular waste, but as a waste with unique risk that must be addressed. Congress should require regulations to establish tough minimum standards, with no exemptions, not only for treatment and disposal but for transportation as well.

A cradle-to-grave approach is a must. Congress cannot ignore the role of the NIMBY syndrome in connection with infectious as well as all other wastes. It is not easy to site an infectious waste facility given the typical level of local opposition to siting any kind of waste facility. Sad to say, perhaps, the public will be sufficiently offended by medical wastes spoiling their summer vacations to face up to the prospect that siting a safe, modern treatment facility in their community may not be that bad considering the alternative.

We applaud you, Mr. Chairman, for turning the spotlight on this very important issue. BFI looks forward to working with you and others in Congress in addressing this important subject.

Thank you.

[Mr. Shaw's statement, with attachments, may be found in the appendix.]

Chairman WYDEN. Mr. Shaw, thank you and thank you for your thoughtful suggestions.

Mr. Wingerter.

TESTIMONY OF EUGENE J. WINGERTER, EXECUTIVE DIRECTOR AND CHIEF EXECUTIVE OFFICER, NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION, ON BEHALF OF BIOMEDICAL WASTE TREATMENT COUNCIL, NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION

Mr. WINGERTER. Mr. Chairman, I am Eugene Wingerter. I am the executive director and chief executive officer of the National Solid Wastes Management Association.

I am here today representing our Biomedical Waste Treatment Council, which is a group of 45 companies specializing in the field of treatment and disposal of infectious waste.

Both my written and my oral statement have been submitted to the subcommittee for the record, and I would like, for the essence of time, to even abbreviate my oral statement for you this afternoon.

We agree with much of the assessments that have been presented in the previous testimony: The need for a definition of infectious waste; the requirement that there be no exemptions for small quantities generated; that a tracking system be established from cradle to grave; and that the Federal Government be authorized to establish treatment and disposal standards for these materials.

We applaud the Congress in its emerging interest in exercising legislative leadership on this subject. But we also share a more longstanding concern for the health and safety of our own workers. Not just those who deal directly with infectious waste, but also the much larger number of residential and commercial solid waste workers who are most likely to be victimized by midnight dumping in ordinary trash containers. There are 150,000 waste handling workers in the country today, and they deserve your help.

Fortunately, some good models for providing this help are emerging. As you probably know, the New York State Department of Health is about to issue new rules that require cradle-to-grave accountability for infectious waste generation, transportation, treatment, and disposal. Many of our members have developed similar systems on their own, but, of course, such systems work far better when they are mandatory, not voluntary. We welcome this outcome, and urge the Congress to put EPA firmly in the driver's seat, with a clear mandate to create minimum Federal standards upon which the States can build.

Naturally, we recognize that creating a new Federal program won't completely solve the problem. Even if uniform standards are adopted, there will still be the question of enforcement. Who will check the manifests, verify that proper procedures have been followed, or decide that a significant violation has occurred and take forceful action?

Nonetheless, a program that provides effective leadership will represent a major step forward.

Ultimately, however, such questions leave unresolved the most critical issue of all—our country's slow, rudderless drift toward a crisis in treatment and disposal capacity. We simply don't have enough facilities to handle the waste of all types that exist today, and never mind what will be generated in the future.

As costs rise, we are concerned that some generators will be tempted to take short cuts or even to evade the law entirely. Unless that problem is solved by adding new capacity, it could take this country right back to the bad old days, when waste producers preferred to send their waste to those sites that today are on the Superfund list and not to the state-of-the-art treatment facilities.

We believe that such conditions must be avoided at all costs. Yes; part of the solution lies in modifying RCRA to set appropriate Federal standards and requirements. But also we ask Congress to recognize that setting such standards, however necessary, only begins to chart the course which public officials, members of my industry, and waste generators must inevitably follow.

What we really need, then, is a national policy which simultaneously clarifies the ground rules for handling infectious wastes, strengthens the enforcement procedures, and addresses public concerns about waste disposal, not just infectious waste, but hazardous waste and ordinary rubbish as well. This is a critical issue, and one which should not be avoided any longer.

Mr. Chairman, our association and our industry are eager to help you with this task, and we will be glad to provide you with whatever information and assistance you and your subcommittee may desire.

Thank you.

[Mr. Wingerter's statement may be found in the appendix.]

Chairman WYDEN. Thank you very much, and just a few questions.

Mr. Shaw, your views seem particularly helpful at this time because you all handle these wastes and have direct involvement with them at that point.

My first question to you is, do health care providers always treat their waste before BFI picks them up?

Mr. SHAW. No; not usually. We are the ones who treat the waste after we pick it up. Some laboratories might treat some of their laboratory waste before we pick it up, but on the general rule, no.

Chairman WYDEN. What are the health problems for you in trying to treat these untreated materials?

Mr. SHAW. As a national company, we've established some very strict handling procedures internally to ensure safety to our employees when handling the material—containerization, proper spill responses, et cetera. But from the garbage side, the garbage worker, there really is not much we can do to prevent a garbageman from getting stuck with a needle. So, that is a real risk.

I guess as an employer of garbagemen, I don't think any of us in this room like to go to the doctor and get stuck with a clean needle, let alone get stuck with a needle that we don't know where it's been.

Chairman WYDEN. So, these medical wastes are being mixed with the solid waste stream, in your view?

Mr. SHAW. It definitely is with the small quantity generators, because there are no guidelines for laboratories, or rules and regulations in most of the States, to handle that waste in a more professional manner. Many of the States, as we speak, are looking at the problem and directing regulation, but on the general whole, today there's not much regulation.

Chairman WYDEN. That's an understatement, given what we've heard over the last 5 hours or so.

I gathered that you, as well, feel that the lack of Federal involvement has precipitated a lot of these problems. You said, I think, earlier on that the local dumpster is the only convenient option for disposing of medical waste. That's a pretty incredible indictment of the present system.

Do you feel a lot of this has been brought on by Federal inaction?

Mr. SHAW. I think the problem has certainly come to a point in today's standards. The hospital used to be the center of the hospital community, and now, all these other health care providers have gone farther away from the hospital.

Chairman WYDEN. As the trend moves to outpatient facilities?

Mr. SHAW. Exactly, and the small, little outpatient facility doesn't have the resources or the facility to site and operate their own incinerator. Now, many times those facilities will try and transport it back to the hospital on their own. I guess we feel transportation regulations are a must, also being in industry. We've heard stories of people hauling medical waste one way and hauling foodstuffs the other way. Now, they are rumors. I don't have any facts. As well as packaging, we feel packaging is a must. We've seen people throw loose bags into the back of trucks. Infectious waste would be separated. However, blood in those vehicles would get ruptured, leak through the truck, and sometimes get on the drive shaft and throw blood, obviously, across the streets, as well as the bottom of the truck. So, we feel regulations are important to the industry.

Chairman WYDEN. You make a point that perhaps we haven't focused on today as much as we should. But the fact of the matter is that with respect to medical reimbursement systems, over the last 4 or 5 years, both on the Government side—Medicare and Medicaid—and on the private sector side, with private insurance, the whole effort with medical reimbursement has been to move to these outpatient kinds of programs that don't have the facilities to responsibly deal with these medical wastes.

I think that is very helpful to have that information, because I think it is yet another important factor that is likely to fuel problems in medical wastes. Virtually everything you see with respect to health care economics and health care planning for the future, suggests that it is going to be more and more a trend of health service, to move toward community base services and the long-term care area. I appreciate you for bringing that out.

One question just for you, Mr. Wingerter. Your organization strongly favors Federal legislation at this point as well. Is that correct?

Mr. WINGERTER. Yes; Mr. Chairman, we feel that the U.S. Environmental Protection Agency should be charged with the responsibility of developing a model regulatory program. That model would serve as a minimum for the States to adopt. The program would be adopted by the States and implemented through their environmental agencies.

Chairman WYDEN. What has been the feeling of your organization, which represents waste handlers, about the Federal Government's response up to this point? OTA, for example, I think, does not look favorably on the role of the Centers for Disease Control in this matter. They say that there are some precautions for workers but not for waste handlers.

What is your assessment of the response of the Federal Government over the last decade in terms of dealing with this?

Mr. WINGERTER. Our workers are handling virtually all types of discarded materials. Since some of this material is showing up in the solid waste stream, our workers are not prepared, in the absence of good safety regulations, to anticipate the hazards that are created.

We feel, with a proper safety program developed by the Federal Government and implemented through the States, that our workers would be much better protected, since we have no control over the material that is being discarded.

Chairman WYDEN. With respect to the public policy issue in all this, certainly your people are going to make money under either system—under the current system or under a system where the Federal Government takes the lead in terms of developing some regulation. But what is the primary motivation for your organization pushing for this expanded Federal role at this point?

Mr. **Wingerter**. We are in the environmental services field, and our responsibilities are to provide environmental protection through our services to the public. We have good standards coming onstream right now to handle waste, and they are providing the public with the type of protection and environmental quality needed.

We feel, Mr. Chairman, that we must have the similar type of standards for infectious waste, not only for the protection of our workers, but to assure that we can apply the technology and the type of management controls that are necessary to handle this material.

Chairman **Wyden**. Does your organization support fines and criminal sanctions for those that are caught in the act of illegal dumping?

Mr. **Wingerter**. We fully support the strongest of enforcement penalties for any violators of the standards and the regulations that we developed to handle these wastes; yes, sir.

Chairman **Wyden**. It seems to me that your organization has done more to help shape legislation and regulatory proposals than the EPA has done within the last 10 years. Do you think that failure has contributed to the problems we've seen today?

Mr. **Wingerter**. We find that the absence of the leadership that is so necessary from the U.S. Environmental Protection Agency is slowing down the process of addressing the problem. Our model regulation that Mr. Shaw indicated was submitted with his statement, is our attempt, as an industry, to provide that in the absence.

Chairman **Wyden**. Gentlemen, we thank you, and you've been very, very patient throughout today's hearing. We will excuse you at this time.

Mr. **Shaw**. Thank you.

Chairman **Wyden**. Our next witness, Mr. Jeffrey Denit, Deputy Director, Office of Solid Waste, Environmental Protection Agency.

Mr. Denit, thank you.

Mr. **Denit**. I'm joined by Mr. Barnes and Ms. Friedman, if it's OK with you, sir, if there are any questions I would like to have them respond as appropriate.

Chairman **Wyden**. Very good. You would desire to have all of them participate possibly as witnesses?

Mr. **Denit**. Yes, sir.

Chairman **Wyden**. You are all on your feet, so we'll swear you in.

Please raise your right hand.

[Witnesses sworn.]

Chairman **Wyden**. We welcome you to the hearing and thank you very much for your patience. It has certainly been a long day. We will make a copy of your prepared remarks part of the record in their entirety, Mr. Denit. If you could summarize some of your principal concerns, particularly as they relate to issues that have been brought up today, that would be very helpful. I noted that you all have been with us, and we appreciate that.

TESTIMONY OF JEFFREY D. DENIT, DEPUTY DIRECTOR, OFFICE OF SOLID WASTE, U.S. ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY DEVEREAUX BARNES, DIRECTOR, CHARACTERIZATION AND ASSESSMENT DIVISION [CAD], AND LISA FRIEDMAN, OFFICE OF GENERAL COUNSEL

Mr. DENIT. I certainly shall, Mr. Chairman, and I do intend, in fact, to cut my prepared remarks somewhat short.

As I indicated to you, sir, I am joined today by Devereaux Barnes, who is Director of the Characterization and Assessment Division of the Office of Solid Waste, and Lisa Friedman, from our Office of General Counsel.

I do indeed appreciate the opportunity to be here today to discuss the Agency's current initiatives for better management of infectious waste and describe the methods prescribed by EPA for infectious waste management.

We certainly share your concerns and those expressed earlier today about the proper management of municipal solid waste in general and medical waste in particular. Municipal solid waste management has emerged rapidly as a major national crisis. We, as a nation, produce more and more garbage—about 150 million tons per year. It is estimated that acute care hospitals generate 3.2 million tons of medical waste per year. EPA estimates that 10 to 15 percent of the hospital waste is infectious.

The current washing up of floatables could be due to a number of sources: Some alleged instances of illegal disposal; combined sewer overflow; stormwater runoff; beach litter; legitimate home users of syringes such as diabetics and illegal drug users; and the general inadequate handling of solid wastes at landfills and coastal transfer facilities.

The solid waste situation is aggravated by increased use of plastic disposable by all consumers, including the medical profession, and a near crisis in availability and cost of solid and infectious waste disposal options.

The solution requires effort by all levels of government and by individual citizens who must become more aware of their own solid waste generation and disposal practices. We need to ensure that all wastes are properly managed to protect human health and the integrity of the environment.

EPA presently identifies six types of waste as potentially infectious. These include: Cultures and stocks of infectious agents and associated biologicals; pathological wastes; human blood and blood products; contaminated sharps; contaminated animal carcasses, body parts and bedding; and isolation wastes, as defined by the Centers for Disease Control.

While concern has been expressed as to their hazard, several studies that we would be glad to provide to this subcommittee, have shown that hospital wastes are less virulent than typical domestic waste.

In addition, the CDC have no epidemiological evidence to suggest that hospital waste is any more infectious than residential waste or that hospital waste has caused disease in the community as a result of improper disposal.

Exposures to infectious wastes that could result in disease transmission are more likely to occur in those occupational settings that generate, transport, store, treat or dispose of these wastes. Therefore, education of those who generate, transport, and dispose of infectious wastes, we believe may be the key to reducing any potential risks from these wastes.

EPA's role in the past has been one of providing guidance, assistance, and education. The "EPA Guide for Infectious Waste Management," published in May 1986, outlines the EPA perspective on environmentally acceptable techniques for managing infectious wastes.

In November 1987, as a result of several incidents of improper management and disposal of infectious wastes and growing public concern about the potential threat of infectious waste, the Agency called together a panel of experts to discuss the definition, proper management, and risks posed by infectious wastes. The meeting was held to evaluate EPA's past role in infectious waste management and to assist the EPA in determining whether the Agency should undertake any additional action under the Resource Conservation and Recovery Act. The proceedings of this meeting have been made available to the public.

The consensus of the panel was that the risks posed by infectious wastes were primarily occupational, that incidents of public exposure to infectious wastes were isolated, that EPA should deal with the situation through guidance and public education, and that EPA should issue regulations only if guidance and education failed to correct the problems associated with infectious waste management.

Most recently, in a further effort to share available information on infectious wastes and their management and to obtain further views of all interested parties, we published in the Federal Register on June 1, 1988, seeking comment on a number of issues related to the subject of infectious wastes. These include: An appropriate definition of infectious wastes; identification of the full range of problems and risks posed by infectious waste; the appropriate role for EPA in managing infectious waste: the appropriateness of requiring tracking systems for infectious wastes; and whether certain infectious waste generators should be exempt if regulations were issued.

As of last week, some 34 comments have been received from trade associations, hospital groups, State and local health departments, and interested individuals.

Our initial review of the comments received suggest the following: While the majority of commenters agreed with EPA's definition of infectious waste, several commenters suggested that small differences in the definition between EPA and CDC should be resolved.

There was no information presented by any commenters suggesting that properly handled and disposed infectious waste posed a public health problem.

The majority of respondents agreed that workers in health care facilities, transporters of infectious waste, and workers at disposal sites run the greatest risk of exposure.

There was some concern expressed that EPA should develop a model program to prevent excessive regulation at the local level.

With regard to tracking systems, it was suggested that tracking should be administered at the State level. However, most commenters felt that the existing RCRA manifest system—that is under subtitle C—was too complicated.

There was mixed response on whether or not small quantity generators should be exempted from any infectious waste control program.

I would like to take just a moment to discuss the special situation in New York, New Jersey, and recently in Long Island. Finding wastes on our beaches, including medical wastes, is frightening, and is inconsistent with EPA's goals of protecting the integrity of the environment.

EPA is directing its activities in four specific directions in this regard: Compliance monitoring and enforcement; direct assistance to States and local authorities; education and guidance to operators, handlers, and transporters; and research on basic information needs, many of which other witnesses have identified today.

The Agency supports the soon-to-be-announced implementation of a tracking system within the States of New York and New Jersey under their respective emergency authorities as an intelligent first step to focus attention on this issue.

With potential legislative action pending for EPA involvement in infectious waste management, the necessity for EPA's involvement should be evaluated from the perspective of both the nature and degree of risk associated with infectious wastes. Education is the common denominator in resolving many of the pending issues. In an effort to better understand the risks, sources, and programs in place to control infectious waste, EPA has: Initiated an evaluation of existing State programs and their effectiveness in controlling the management of infectious waste; established a Solid Waste Task Force to develop a comprehensive national strategy for the municipal solid waste problem, for wastes ranging from yard wastes and paper wastes to infectious medical waste.

EPA is also developing a training manual for operators of hospital incinerators and an air compliance inspection manual for use by inspectors.

We all agree that good management of infectious waste is important, and I will continue to count infectious waste management among my highest priorities. We all share the same concerns that solid waste, including infectious waste, must be managed properly and that our near coastal waters and beaches must not be dumping grounds.

The Agency is fully committed to using section 7033 and other appropriate authorities to the fullest extent possible under RCRA or other environmental statutes when illegal disposal or dumping activities occur.

I look forward to working with all concerned to effect responsible solid waste management practices.

This concludes my statement, Mr. Chairman. I and my colleagues are available for any questions you have.

[Mr. Denit's statement may be found in the appendix.]

Chairman WYDEN. Thank you, Mr. Denit.

Mr. Denit, over the last 4 or 5 hours we have had one witness after another come before this subcommittee to express frustration.

Frankly, a lot stronger words were used in some cases, about EPA's commitment to deal with this problem.

Now, I understand that there have been discussions. I understand that there have been voluntary suggestions and things of this nature. But why isn't there a plan in place to deal with this problem? A real plan, that puts in place a system as virtually all our witnesses have called for today, whether they are waste handlers, or health care workers. Why isn't there a plan?

Mr. DENIT. Let me offer just a little background in terms of the setting in responding to your question, Mr. Chairman. When the Agency originally proposed regulations under subtitle C for infectious wastes back in the late 1970s—that was fortunately or unfortunately, as the case may be, before my time in the organization—but at that time in excess of 60 public comments were submitted for the record. All but one of those comments generally unalterably opposed the use of subtitle C hazardous waste requirements for the control of infectious waste and invited the Agency instead to acquire a vast array of additional information, including risks and sources, and to deal with it informally as guidance at that time.

At that point, the Agency frankly committed in terms of its decision process to go ahead and proceed in additional data collection mode of activity, and that culminated in the 1982 timeframe with the draft "Infectious Waste Manual," and subsequently with additional review and further technical information, made a final management guidance document in 1986.

One of the major reasons why the Office of Solid Waste and the Administrator personally instituted our Municipal Waste Strategy Task Force was to deal with the larger questions that are raised in the handling of infectious waste, which is that it is a part of a rather monumental difficult problem with respect to solid waste in general.

We are establishing an action strategy which we hope to issue by the end of this month or early next month, for preliminary review. It does pick up a menu or a panoply of waste management practices for medical waste, and infectious waste, and other solid waste, which include source reduction, proper incineration, or disposal as part of the system, and indeed, proper management of waste of any type in landfills.

Chairman WYDEN. Mr. Denit, let me just say that impartial observers don't share your view about the value of the steps that you have taken as of this point. For example, you cite the research matter which you have undertaken.

Let me read you from what the OTA's testimony said. "EPA has not vigorously undertaken or encouraged research to substantiate a lack of a substantial present or potential hazard, the human health or the environment, when a waste with infectious characteristics is improperly managed."

It goes on to say that that's a criterion of RCRA's definition of hazardous waste.

So, even in the one step that the Agency says it is doing something about, which is research, that one step, the Office of Technology Assessment certainly does not share your view that a vigorous research program has been undertaken. Quite the contrary, they say specifically that it has not been sufficient and not been at all adequate, given the magnitude of the problem.

Now, your testimony, I must tell you, raises a lot more questions in my mind. You say, for example, EPA will consider regulations only if education and guidance fail to improve current management practices. That's what's in your testimony at the bottom of page 9.

We have heard hour after hour of testimony today indicating that current management practices aren't working. What is it going to take to get the Environmental Protection Agency serious about this situation?

Mr. DENIT. That's one of the reasons, Mr. Chairman, why we went public back in early June with the Federal Register notice. In addition to the episodes of last fall on the New Jersey-New York coastlines, there had been other incidences of information which have become available to the Agency, which basically called into question the degree to which we had the proper information base or indeed the proper strategic course of action set in motion.

The fact of the matter is that the reason we want to try to then reassess, given the additional public comment, on exactly what should be our proper course of action. We will have to await the review of those comments and data input and see where we go from there.

Chairman WYDEN. If these comments come back echoing the kind of testimony that we heard today—and it has been the unanimous view of the witnesses, whatever field they are, waste haulers, whatever—are you then going to act and put in place a national policy to deal with these medical wastes?

Mr. DENIT. I think it's fair for me to say yes; although I will carry the thought back to the Administrator. But at this point, I am prepared at least to commit this, and that is the Agency has a very open mind in terms of which strategy that ought to be taken.

I think as a bare minimum, we see the wisdom of some concept of "special waste," which has been mentioned by other witnesses, among a large list of other wastes which could perhaps be better managed in the tailored sense pursuant to our subtitle D nonhazardous waste authorities rather than the full requirements of subtitle C; but at the same time, focusing more directly on infectious wastes in the way that deals with the risks and with the management practices properly.

Chairman WYDEN. Again, what I want to see is the Agency take some action now. You said again that in June there was a meeting. Well, here we are on August 9, and you, the Agency, introduced testimony to this subcommittee saying that EPA will consider regulations only if education guidance fail to improve current management practices.

Is there any question in your mind about whether current management practices are working?

Mr. DENIT. A substantial body of information that's been made available to me indicates that a substantial portion of current management practices are working well; that a vast number of people are in fact autoclaving and otherwise treating their waste prior to disposal. A substantial number of State regulatory authorities have the fabric of rulemaking in place in order to try to assure that.

We are also wrestling with trying to sort out the implications in terms of our shoreline problem and other situations—the implications of excessive sloppiness; the effects of increased disposables in the whole fabric of our solid waste system, and whether that means that there's a breakdown in management practices or regulatory structure, and whether or not, in fact, EPA needs to become more thoroughly involved. It's just not clear to the Agency at this point.

Chairman WYDEN. Mr. Denit, it was certainly clear to the witnesses. We have just heard a few minutes ago one of the leading waste handlers say that under the current regulatory climate the only convenient way to deal with it is through a dumpster.

Now, even if one were to take your view that current management practices are working—and that contradicts everything that we heard through the witnesses today—how would you know? The Office of Technology Assessment says you all haven't done sufficient research, as you should have.

How do you know? What do you base this on?

Mr. DENIT. I would agree that to the extent that research in this sense, Mr. Chairman, is referring to what other witnesses that have also noted, which is that none of us—that EPA is no exception—have really the thorough database to evaluate all of the implications in this particular waste matter, then you're absolutely right. That's one of the reasons why that first step that we've taken with the Federal Register notice, I view as a way for us to begin to get a better handle on all of that.

Chairman WYDEN. Why didn't you start doing this 10 years ago? Why didn't EPA start in 1978? At that time, EPA proposed regulations under the Solid Waste Disposal Act which would classify certain infectious waste as hazardous, and after 1978, the Agency just dropped the ball for a full decade. Why?

Mr. DENIT. I personally would have to speculate on that a little bit. I guess the answer to it is that in terms of the information and commentary that did flow to EPA at the time of the 1978 proposal, stacked against the similar information that was flowing with respect to the whole preponderance of hazardous waste disposal issues that we were dealing with at that point in time, including all the solvents, and oils, and other waste, that it was just viewed as simply not the environmental problem with the associated environmental risk of many of these other waste problems. The Agency conceded the point that we needed the additional information, and set about a process to acquire it. What is to some extent now put on the table as a consequence of that action is the pace at which the Agency moved in acquiring that additional information.

I, for one, would be the first to admit we certainly haven't moved as rapidly as we could have. On the other hand, at the time of the original decision in 1978, I'm not in a position to second guess that decision.

Chairman WYDEN. I understand it. But for the life of me, I can't figure out why EPA didn't get going in 1978. I mean, they are all ready. There is discussion, proposed regulations under the Solid Waste Disposal Act, which would classify the infectious waste as hazardous. When these regulations were made final on May 19, 1980, infectious wastes weren't included, and then off and on, between 1980 and 1988, the Environmental Protection Agency just paid lip service to this problem.

I just think that it was very derelict over that decade to not go forward with a program. As of now, I gather that the Agency has assigned one person to this program?

Mr. Denit. We have officially established a position for an infectious waste coordinator; yes.

Mr. Barnes. If I could add a little bit to that, Mr. Chairman.

Chairman Wyden. I just want to make sure I get it from Mr. Denit, and then I would be happy to hear from you.

How is one person, given what we've heard today, going to be able to perform the various research efforts, and some of these steps that your Agency wants to take? Is that what a real commitment is all about, one person?

Mr. Denit. No, sir; perhaps not. The point is, the infectious waste coordinator evolved as a consequence of the issues having for the most part rearisen and come further to the Agency's attention several months ago. Our reaction at that point was to at least have a centralized point of contact within the organization.

We are certainly looking at, as this begins to unfold over the next few days and weeks, we will be looking further at organizational questions of the type you are raising here.

Chairman Wyden. You do plan to enlarge the staff? There will not just be one person who will work in this area?

Mr. Denit. I am not prepared to commit at this point as to how big the staff will get. But it's fair to say that there will be additional resources from within the Office of Solid Waste that would get brought to bear on all of this, as well for next year and the year after. We have asked for some budgetary increases in terms of our funding levels to support the infectious waste program specifically.

Chairman Wyden. I guess what I'd say is I see the Environmental Protection Agency in this country as the premier watchdog over environmental issues. It is pretty hard for me to understand how the Environmental Protection Agency can be a leader on policies relating to infectious waste management when they have a grand total of one person in a position to coordinate this.

Why don't you get back to us? I would like to have the Environmental Protection Agency get back to us within the month; let us say, within 30 days, on their plans for how that office would be coordinated, whether the staff is going to be enlarged, and how specifically we are going to see the Environmental Protection Agency deal with this issue.

Mr. Denit. Yes, sir, Mr. Chairman.

[The requested information was not received.]

Chairman Wyden. I think your associate wanted to make a comment, and then we'll have a few more questions.

Mr. Barnes. I just wanted to point out that more people now, as we talk, are working on this problem than one person. The one person estimate was an estimate for budget purposes. We have initiated over the last months, or before that even, the work of more people on that. In addition, there are other people in the Agency that are also working on this problem. There are other people in the office that are looking at the incinerator question that other witnesses raised, and there are people in the Office of Research and Development who are also dealing with this issue.

Chairman WYDEN. Why don't we say, Mr. Denit, we would like an organizational breakdown of the Agency's response. What this coordinator is doing, and what, if anything, these other personnel are doing on this.

Mr. DENIT. Yes, sir.

[The requested information was not received.]

Chairman WYDEN. One of the things that concerned me about OTA's testimony is that under the current system, problems of inconsistency exist at the State level. However, there doesn't seem to have been any evaluation of what's been done at the State level. OTA said that your Agency had not evaluated those State rules.

Why, if the department is putting so much emphasis on State rules and State regulations, why has the department not done a review of what the States are doing?

Mr. DENIT. We have that program under way now, sir. That's one of the activities——

Chairman WYDEN. I want to make sure I got that. That program is now under way?

Mr. DENIT. The evaluation of existing State programs, we are going back to a detailed assessment specifically to those programs.

Chairman WYDEN. So, after 10 years, with initial consideration beginning in 1978, we now have under way an evaluation of what the States are doing, even though during that whole 10-year period the belief was that this could be handled at the State level.

I just have to tell you that I don't consider that adequate at all. It is one thing to argue for State regulation. All of us want to see States handle whatever possible. But you certainly can't say that something is working at the State level when you haven't even evaluated it.

When do you expect that the evaluation of what the States are doing will be available?

Mr. DENIT. March 1989 is the timeframe.

Chairman WYDEN. March 1989, the Environmental Protection Agency will produce for the Agency and the public an evaluation. So, it will have taken 11 years to have even an analysis of the system that the Agency says the States are handling. You have told us today that you don't find any problem with the current management system which essentially relies on the States.

I find that just absolutely incredible, Mr. Denit, to think that we are not going to get, until March 1989 and possibly longer, even an evaluation of what the States are doing, given the fact that the Agency considers that is the centerpiece of the strategy as to how to deal with the management of medical wastes.

Let me just say, I'm going to take that up with Mr. Thomas right away, because I just think that's absolutely incredible that we are going to have to wait that long for it.

Mr. DENIT. Again, as I pointed out earlier, this is about the fourth time that the Agency has gone public with requests for input on this subject. A lot of that input has come directly from States, the major professional associations, and the people that handle and dispose of these wastes.

It is on the basis of that record that we had basically made the decision that the local programs appeared to us to be working quite well. It is as a consequence of what appears to be the increasing number of episodes in this larger picture of solid waste mismanagement nationwide that has caused us to go back for this more detailed assessment now and independent outlook.

As I had indicated to you earlier, the time and pace at which the Agency has moved is clearly a responsibility of ours for which we are really not apologizing, but acknowledge it is part of the problem.

Chairman **WYDEN**. But input from the States, and assisting them—which we are all in favor of—is not the same thing as making an assessment of what the States are doing.

I just think that's critical, given the fact that is the centerpiece of your strategy—State action and voluntary guidelines, and for you to not even have made an assessment of what the States are doing, I just think is derelict and unacceptable.

We have a vote on the floor, but I just have to tell you, I get more and more curious about this as time goes along. So, if you all are willing, let me go make this vote, and I will return for a few more minutes of questions.

Mr. **DENIT**. Fine, Mr. Chairman.

[Recess.]

Chairman **WYDEN**. Mr. Denit, again let me extend my personal thanks to you. You all have been very patient. I think we can finish up.

Mr. **DENIT**. That's fine, Mr. Chairman.

Chairman **WYDEN**. I appreciate your willingness to abide by these votes today.

Now, most advocate the incineration of infectious medical waste—at least from most of the experts we've heard from. But we've also heard that incineration is becoming more of a problem. Hospital incineration plants have been found to have higher emission rates for dioxins, and furans, and known carcinogens than from municipal incinerators.

My question is, what is EPA doing to help set standards, particularly for those two known carcinogens, the dioxins and the furans?

Mr. **DENIT**. I can answer some of that, Mr. Chairman, and I will turn to my colleagues for a little bit of help.

But as a general response, the Agency's Office of Air Quality Planning and Standards has already assessed emissions from burning, as you perhaps know, and has done a study of the emissions from hospital waste incinerators and has issued a draft report that is entitled Hospital——

Chairman **WYDEN**. I'm sorry, we just missed that.

Who did the study?

Mr. **DENIT**. The Agency's Office of Air Quality Planning and Standards. They have issued a draft report which is entitled the "Hospital Waste Combustion Study." From that report they are now doing a detailed assessment of emission standards, which should be developed that are directly applicable to hospital waste incinerators.

Second, with respect to the question on ash, again, the ash from an infectious waste incinerator would be very much in the larger context of municipal waste combuster ash in general, which, as you know, the Congress already has under consideration for legislation as one of the kind of special wastes we talk about. But more specifically to the issue of hospital waste, in the next fiscal year our Office of Research will be undertaking an analysis of various types of ash management and stabilization systems under a program we call Municipal Innovative Technology Evaluation. One of the projects that we will undertake as part of that larger program will be specific to hospital waste incinerator residues.

Chairman WYDEN. I am just reading from the OTA statement. "Hospital incinerator emissions, both dioxins and furans, are on the average 1 to 2 orders of magnitude higher per unit of waste burned than are of emissions from municipal solid waste incinerators." They go on to say what concerns some observers, that many of the hospital incinerators are located in heavily populated areas and appear to have relatively high emission rates for some pollutants.

You all have this report, and you are making an assessment of it. Do you plan at this time to take any action with respect to——

Mr. DENIT. Emission standards?

Chairman WYDEN. Yes.

Mr. DENIT. Let me defer to Mr. Barnes. He has done the details on this.

Mr. BARNES. The Agency shares the concerns expressed in there about the quality of some of the incinerators.

My understanding is the Air Office is going to, during the next fiscal year, do a risk assessment, using part of the data that's in that report, and they are collecting additional data on some of the older incinerators to get a better handle on those cases where the risk might be higher, and try and estimate to what extent these incinerators pose a problem in urban areas.

I believe they are committed to doing a risk assessment in the next fiscal year.

Mr. DENIT. One additional thing, Mr. Chairman. Let's be sure to put this—again, I don't want to try to mislead anyone—in the larger context. The Agency is fully aware of the formation of dioxins and furans in the combustion process, occasioned by the presence of chlorinated plastic materials or other materials. It is in that context that we are looking at not only the hospital systems, but our Office of Air Quality Planning and Standards has also already published an advanced notice of proposed emission standards from municipal waste combusters in general.

To the degree to which these facilities for hospital wastes are a subset of that requiring more detailed or tailored standards, we will certainly be looking at that.

Chairman WYDEN. How do you plan to assess whether the education plan and the voluntary guidelines are actually working?

Mr. DENIT. You mean in terms of the followup and just to see what's going on?

At this point that's one of the elements of analysis of the commentary on this Federal Register notice. We would, in effect, have to put into place some scheme of either feedback from the State or some kind of a data acquisition system that would allow us to keep periodic touch with what's going on. Alternatively, we would be left with fairly much the anecdotal situation we have now, which is something's broken, we'll find out about it, and if it isn't, we'll basically presume that everything's OK.

That course of action is one that we're looking at trying to get away from completely, but the exact form of followup to kind of assess the adequacy of education posters and so forth, is something which just hasn't been decided yet.

Chairman WYDEN. It just is awfully hard to see how the Agency is going to make a real program emerge. You state that we're going to rely on voluntary guidelines, but I don't see any evidence of how you are really going to evaluate those to determine that they are working adequately.

You say you've got a research program ongoing, and OTA and others have taken you to task.

How many years is it going to take to make a real program emerge from the Environmental Protection Agency to deal with this?

Mr. DENIT. Estimating how long it takes from the time we've actually put some emphasis on it is just a little hard for me to say at this point.

I guess the context of the continued inquiry there is that we acknowledge that having made the decision not to use subtitle C in 1978, that in essence, EPA did very little other than formulate some data into a report over literally the next 8 years, which takes us to 1986.

Since that time——

Chairman WYDEN. 1996.

Mr. DENIT. I'm sorry?

Chairman WYDEN. 1996. You said over the next 8 years?

Mr. DENIT. No; beginning in 1978 when we made the decision not to use subtitle C, there was little, if any, activity in EPA, so it takes us all the way to 1986 before you get their guidance material.

Since that time, we have, quite honestly, moved as rapidly as we could with the resources we have to bring to bear on this subject. Only recently in the context of the incidences of last fall and more recently, we have tried to bring everything to bear that we possibly could to get further involved in this matter.

How long from now it's really going to take us to get the pieces pulled together, Mr. Chairman, I'm just not in a position to say at this point.

Chairman WYDEN. But we're really not that much further along than we were in 1978, are we? In 1978, the Agency proposed a regulation. There was some controversy and debate. But as of now, it doesn't seem to me that we've moved much further toward an approach than was first proposed in 1978.

Mr. DENIT. Certainly to the extent that either by design or misreading some of the signals, the information we've gotten over the course of those years that infectious wastes would pretty well be handled at the local level, and that there wasn't any particular risk or exposure, we may have been misled. I'm not sure at this point.

As I have indicated to you on several occasions, we are moving on as many different courses of action now as we can.

Chairman **Wyden**. My sense is just the inaction of the Agency has sent out a message. The message is there isn't going to be any policy. The States are just to do what they think is best, and some States will do well, and some States will do otherwise.

I told you what I thought was particularly disturbing is that the centerpiece of your policy is the State action, and you all haven't even done an assessment of what the States are doing.

I just don't want to see us wait years and years more, go through another four or five summers of what we saw this summer. We don't even know whether this summer is going to be representative of what's to come.

But I'll tell you, I've been sitting here for hours, and I hear about OTA saying that all the signs are going to move more of these medical wastes offsite, transporting them, encouraging illegal dumping, newspaper write-ups of hospitals being penalized for mixing medical wastes in the solid waste stream. It is not a pretty picture.

I just hope that the Agency is going to get serious about this and not let us wait another 5 or 10 more years before we do something about it. I think that there's room for debate as to how to best do it. We've had a lot of very good suggestions, but certainly we've got to get going.

Unless you have anything further, we will excuse you at this time. We certainly plan to be in close contact with you all on this issue from here on in.

Mr. **Denit**. Thank you, Mr. Chairman.

Mr. **Barnes**. Thank you.

Chairman **Wyden**. The record will stay open for the response of the Environmental Protection Agency to the questions that were left open at the hearing.

Also, Mr. Denit, the Agency wouldn't have any objection to answering some other questions that the staff would pose in writing?

Mr. **Denit**. No, sir; that would be fine.

[The requested information was not received.]

Chairman **Wyden**. We thank you for your courtesy and your patience.

Without further comment by our witnesses, the subcommittee is adjourned.

[Whereupon, at 3:45 p.m., the subcommittee was adjourned, subject to the call of the Chair.]

APPENDIX

BANKING, FINANCE AND
URBAN AFFAIRS

HOUSING AND COMMUNITY
DEVELOPMENT

GENERAL OVERSIGHT AND
INVESTIGATIONS

ECONOMIC STABILIZATION

SMALL BUSINESS

PROCUREMENT, INNOVATION, AND
MINORITY ENTERPRISE DEVELOPMENT

REGULATION AND BUSINESS
OPPORTUNITIES

SELECT COMMITTEE ON HUNGER

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STATEMENT
OF
CONGRESSMAN FLOYD H. FLAKE
BEFORE
THE SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES
ON
AUGUST 9, 1988

GOOD MORNING. MR. CHAIRMAN, THANK YOU FOR CONDUCTING THIS HEARING. THE ISSUE OF TOXIC WASTES DISPOSAL IS IMPORTANT NOT ONLY TO THE CITIZENS OF OUR COUNTRY, BUT TO THE ENTIRE WORLD. WE HAVE FINALLY REACHED A POINT, AFTER A CENTURIES-LONG BINGE, WHERE OUR ENVIRONMENT HAS BEGUN TO CRY OUT THAT IT CAN NO LONGER TAKE THE ABUSE AND OUR CALLOUS DISREGARD FOR ITS WELL BEING. WE MUST STOP DESTROYING OUR NATURAL RESOURCES BEFORE WE REACH A POINT OF NO RETURN WHICH UNFORTUNATELY WILL RESULT IN THE DEMISE OF ALL FORMS OF LIFE ON EARTH.

WE CANNOT CONTINUE TO DEPLETE OUR ENERGY RESOURCES; SIT IDLY BY WHILE OUR FORESTS ARE BEING DESTROYED BY ACID RAIN; CONTINUE TO CONTAMINATE THE SOIL AND GROUND WATER BY DISPOSING OF TOXIC

WASTES IMPROPERLY; AND ALLOW OUR OCEANS AND ITS INHABITANTS TO BE KILLED BY THE POLLUTANTS THAT ARE CONTINUALLY BEING DUMPED IN OUR OCEANS.

AS A MEMBER OF THIS SUBCOMMITTEE, I AM PLEASED TO BE PARTICIPATING IN THIS HEARING WHICH IS THE FIRST IN A SERIES OF HEARINGS TO BE HELD BY THIS SUBCOMMITTEE. THE PURPOSE OF THESE HEARINGS WILL BE TO DETERMINE: (1) THE THREAT TO THE PUBLIC POSED BY INFECTIOUS WASTES; (2) HOW INFECTIOUS WASTES ARE HARMING THE ENVIRONMENT; AND WHETHER HANDLING THESE WASTE PRODUCTS POSES A HEALTH HAZARD TO WORKERS. WE WILL ALSO EXAMINE ALTERNATIVES TO OCEAN DUMPING, THE KIND OF MATERIALS USED FOR CONTAINERS AND PACKAGING, INCINERATION, AND THE USE OF LANDFILLS.

WE ARE ALL BY NOW AWARE OF THE POLLUTION THAT HAS OCCURRED ALONG THE EASTERN SEABOARD, ESPECIALLY IN NEW YORK CITY. ROCKAWAY BEACH WAS CLOSED PERIODICALLY THROUGHOUT THE MONTH OF JULY BECAUSE ON JULY 17, 1988, RANGERS AT JACOB RIIS PARK BEACH DISCOVERED DISCARDED SYRINGES THAT HAD WASHED UP ON SHORE. AT THAT TIME MORE THAN 3,000 PEOPLE WERE ON THE BEACH READY FOR A DAY OF SUN AND SURF, BUT THEIR RECREATION WAS CUT SHORT WHEN PARK OFFICIALS ANNOUNCED THAT SWIMMING WOULD BE PROHIBITED FOR SAFETY PRECAUTIONS. THE BEACH REMAINED CLOSED UNTIL JULY 20, 1988.

THESE BEACH CLOSINGS ARE A DRAMATIC REMINDER OF THE IMPACT

THAT ABUSING OUR ENVIRONMENT HAS ON ALL OF US. FOR THE PEOPLE LIVING AND WORKING ALONG THE EASTERN SEABOARD, THE ISSUE OF INFECTIOUS WASTE DUMPING IS NOT ONLY AN ENVIRONMENTAL ISSUE BUT AN ECONOMIC ISSUE AS WELL.

RECENT EVENTS HAVE MADE US ALL REALIZE THAT WE MUST STOP USING THE OCEAN AS A GARBAGE DUMP. IT IS ESTIMATED THAT NEW YORK CITY ALONE DUMPS 3.9 MILLION TONS OF SEWAGE SLUDGE INTO THE ATLANTIC OCEAN EACH YEAR. WHILE FEDERAL LAWSUITS HALTED DUMPING BY PHILADELPHIA AND DELAWARE RIVER PORTS IN THE '70s, NEW YORK WON AN EXCEPTION. SINCE SEVENTY-FIVE PERCENT OF THE U.S. POPULATION LIVES WITHIN AN HOUR'S DRIVE OF THE SHORE, IT IS IMPERATIVE THAT WE TAKE CORRECTIVE MEASURES IMMEDIATELY SINCE STUDIES REVEAL THAT EVEN TREATED SEWAGE IS DANGEROUS TO MARINE LIFE.

WE CANNOT STAND BY AND ALLOW THIS SITUATION TO CONTINUE. WE ARE AT LAST BEGINNING TO REALIZE THAT DUMPING IN THE SEAS IS FAR MORE COSTLY THAN WE COULD HAVE EVER IMAGINED. WHILE IT MAY BE CHEAPER FOR CITIES TO DISPOSE OF THEIR WASTES BY DUMPING SLUDGE INTO OUR OCEANS, THE COSTS ASSOCIATED WITH POLLUTED OCEANS CANNOT BE MEASURED MONETARILY.

FORTUNATELY FOR US, ALTERNATIVES DO EXIST SUCH AS RECYCLING, USING BIODEGRADABLE MATERIALS AND IMPROVING OUR TREATMENT OF

SEWAGE. NO MATTER HOW COSTLY, OUR VERY SURVIVAL DEPENDS ON WHETHER OR NOT WE USE THE TECHNOLOGY AT HAND TO DEVELOP OUR OPTIONS. THIS CLEAN-UP MUST BEGIN NOW. WHILE RESULTS WILL NOT BE EVIDENT OVERNIGHT, IT IS THE RESPONSIBILITY OF THIS CONGRESS TO HEED THIS WARNING AND PUT INTO PLACE LONG-TERM MEASURES THAT WILL PREVENT THE FURTHER ABUSE OF OUR ENVIRONMENT.

FIRST, WE MUST PROSECUTE VIGOROUSLY THE PERSONS WHO HAVE DUMPED THIS DEATH INTO OUR OCEANS AND WHO CONTINUE TO POISON OUR AIR. SECOND, WE MUST IMPROVE OUR SEWAGE PLANTS AND LEARN TO RECYCLE WASTES IN ORDER TO DECREASE THE ACCUMULATION OF IT. THIRD, WE MUST RESTRICT THE USE OF PACKAGING AND CONTAINERS THAT ARE NOT BIODEGRADABLE AND DECREASE THE EMISSION OF TOXIC FUMES INTO OUR ATMOSPHERE. LAST, WE MUST ENACT LEGISLATION AS WELL AS GUARANTEE THE STRICT ENFORCEMENT OF NEW AND EXISTING LEGISLATION THAT WOULD DETER AND ULTIMATELY PREVENT THE IMPROPER DISPOSAL OF WASTES. NOT ONLY MUST OUR EFFORTS BE COORDINATED WORLDWIDE BUT WE, HERE IN THE U.S. MUST ALL WORK TOGETHER AT EVERY LEVEL OF GOVERNMENT TO PROTECT OUR NATURAL RESOURCES SO THAT OUR CHILDREN MAY INHERIT A WORLD CAPABLE OF SUSTAINING LIFE.

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STATEMENT BY
SENATOR JOHN H. CHAFEE
IN THE REGULATION AND BUSINESS OPPORTUNITIES SUBCOMMITTEE
SMALL BUSINESS COMMITTEE
U.S.HOUSE OF REPRESENTATIVES
ON S. 2680, THE MEDICAL WASTE TRACKING ACT OF 1988
AUGUST 9, 1988

I WOULD LIKE TO THANK REPRESENTATIVE RON WYDEN, CHAIRMAN OF THIS SUBCOMMITTEE, FOR INVITING ME HERE TO TESTIFY ON THE SERIOUS HEALTH THREAT POSED BY MEDICAL WASTE ON OUR BEACHES.

WITHIN THE LAST FEW WEEKS, THE NEW ENGLAND AND MID-ATLANTIC REGIONS HAVE BEEN INVADED BY A SEA OF GARBAGE, AN INVASION WHICH INCLUDES SYRINGES, HYPODERMIC NEEDLES, VIALS OF BLOOD, GUAZE DRESSINGS AND OTHER MEDICAL WASTE. THOUSANDS OF PIECES OF MEDICAL WASTE, TOGETHER WITH TONS OF OTHER DEBRIS, HAVE WASHED ASHORE, NOT JUST IN NEW YORK AND NEW JERSEY, BUT IN CONNECTICUT, RHODE ISLAND AND MASSACHUSETTS AS WELL. IN RHODE ISLAND NEARLY EVERY BEACH HAS BEEN TAINTED WITH THE DISCOVERY OF SOME AMOUNT OF INFECTIOUS WASTE.

IN NEW JERSEY FIVE VIALS OF BLOOD WERE DICOVERED WASHED UP ON THE SHORELINE, AND TWO OF THESE VIALS TESTED POSITIVE FOR THE AIDS VIRUS. NOW I KNOW THAT THERE IS ALMOST NO POSSIBILITY OF BEING

INFECTED BY THE AIDS VIRUS FROM MEDICAL WASTE, BECAUSE OF THE VIRUS'S POOR ABILITY TO EXIST OUTSIDE THE HUMAN BODY. BUT THERE STILL IS A DANGER OF INFECTION, ESPECIALLY OF CONTRACTING HEPATITIS-B, FROM THESE WASTES.

THE CENTER FOR DISEASE CONTROL HAS SAID THAT CONTAMINATED NEEDLES, HUMAN BLOOD AND BLOOD PRODUCTS, PATHOLOGICAL PARTS AND LABORATORY WASTES POSSESS REAL POTENTIAL TO TRANSMIT DISEASE.

FORTUNATELY, THE AMOUNT AND TYPES OF MEDICAL WASTE WASHING UP ON NEW ENGLAND BEACHES HAS NOT BEEN SUFFICIENT TO REQUIRE ANY BEACH CLOSINGS...AT LEAST NOT YET. IN NEW YORK, HOWEVER, IT IS A DIFFERENT STORY. THERE SEVERAL BEACHES HAVE HAD TO CLOSE DOWN BECAUSE IT IS DEEMED UNSAFE FOR BEACHGOERS TO RISK COMING IN CONTACT WITH INFECTIOUS WASTE.

CONGRESS HAS A VERY REAL OPPORTUNITY TO ADDRESS THIS PROBLEM, NOT IN THE USUAL TWO YEARS IT TAKES US TO ENACT LEGISLATION, BUT NOW, BEFORE THE END OF THIS SESSION OF CONGRESS. MR, CHAIRMAN, AS I AM SURE YOU ARE AWARE, THE SENATE HAS ALREADY PASSED, UNANIMOUSLY, A BILL TO COMBAT THIS PROBLEM

THIS BILL, THE MEDICAL WASTE TACKING ACT OF 1988, WILL DIRECT EPA TO IMPLEMENT A TRACKING SYSTEM WHICH WILL TRACE THE PATH OF MEDICAL WASTE IN NEW YORK, NEW JERSEY AND CONNECTICUT FROM

"CRADLE TO GRAVE". THIS SYSTEM WILL CREATE A PAPER TRAIL FROM WASTE PRODUCER TO DISPOSAL SITE.

PERHAPS MORE IMPORTANTLY, THIS MEASURE WILL IMPOSE CRIMINAL PENALTIES ON THOSE CONVICTED OF IMPROPER DISPOSAL OF MEDICAL WASTE. ANYONE IMPLICATED IN POLLUTING OUR OCEANS WITH HYPODERMIC NEEDLES, VIALS OF INFECTIOUS MATERIALS AND OTHER MEDICAL WASTES SHOULD NOT JUST BE SLAPPED WITH A STIFF FINE, BUT SHOULD SPEND YEARS BEHIND BARS. THESE ACTIONS ENDANGER PUBLIC HEALTH, AND THOSE CONVICTED OUGHT TO BE TREATED LIKE THE CRIMINALS THEY ARE.

I HAVE WORKED WITH MY COLLEAGUES ON THIS MEASURE TO MAKE SURE THAT EPA IS FOCUSING ON HOW THIS WASTE IS BEING TRANSPORTED TO NEW ENGLAND. THE INCIDENCE OF HOSPITAL WASTE ON NEW ENGLAND BEACHES MAKES IT CLEAR THAT THIS IS NO LONGER JUST A PROBLEM FOR NEW YORK AND NEW JERSEY, BUT THE ENTIRE EAST COAST.

THIS LEGISLATION WILL REQUIRE EPA TO CONDUCT MONITORING OF BEACHES IN NEW YORK, NEW JERSEY, AND NEW ENGLAND WHERE THERE HAVE BEEN REPORTED INCIDENCES OF MEDICAL WASTE WASHING UP ON SHORE. THE BILL PROVIDES A CONGRESSIONAL FINDING THAT "THE IMPROPER DISPOSAL OF MEDICAL WASTE IS PRESENTING AN IMMINENT AND SUBSTANTIAL ENDANGERMENT TO PUBLIC HEALTH AND THE ENVIRONMENT", AND EMPOWERS AND DIRECTS EPA TO USE THE AUTHORITY OF THE SOLID WASTE DISPOSAL ACT TO CORRECT THE PROBLEM

LAST WEEK I MET WITH THE ADMINISTRATOR OF THE EPA, LEE THOMAS, ON THIS ISSUE. MR. THOMAS WELCOMES THE SENATE-PASSED LEGISLATION, SAYING IT GIVES HIM MORE DIRECT AUTHOITY THAN HE CURRENTLY HAS TO TACKLE THE PROBLEM.

MR. CHAIRMAN, I STRONGLY ENCOURAGE YOU, AND OTHER MEMBERS OF THE HOUSE OF REPRESENTATIVES CONCERNED ABOUT THE PROBLEM OF MEDICAL WASTE, TO ACT WITH ALL SPEED TO PASS A BILL COMPRABLE TO THE SENATE-APPROVED LEGISLATION.

IT WILL BE ALL TOO EASY, ONCE SUMMER IS OVER AND THE VACATIONERS HAVE GONE HOME, TO PUT THIS PROBLEM OFF UNTIL NEXT YEAR. BUT WE OWE IT TO OUR CONSTITUENTS, TO THE MILLIONS OF AMERICANS WHO DEPEND ON THE OCEAN FOR THEIR LIVLIHOOD, OR FOR RECREATION, TO PUT A HALT TO THIS HORRIBLE TIDE ONCE AND FOR ALL. THANK YOU.

TESTIMONY OF DR. KATHRYN D. WAGNER
OFFICE OF TECHNOLOGY ASSESSMENT
U.S. CONGRESS

BEFORE THE SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES
HOUSE COMMITTEE ON SMALL BUSINESS

HEARING ON BIOMEDICAL WASTES
AUGUST 9, 1988

Good Morning. I am Kathy Wagner, an analyst with the Office of Technology Assessment. Much of my testimony today is drawn from OTA's ongoing evaluation of biomedical waste management. It is part of a larger OTA assessment on municipal solid waste management issues to be completed early next year. A staff paper on biomedical waste management will be issued by OTA this fall and will address: the adequacy of current biomedical waste disposal practices; the potential risks from such practices; and the need for further federal requirements for the handling, treatment, storage, and disposal of biomedical wastes.

Clearly, as the media reports daily, there are problems associated with the disposal of biomedical wastes and the issue is a serious public concern.[1] The obvious and important questions are: 1) Why are these waste disposal problems becoming more prevalent? 2) What is the exact nature and extent of these problems? 3) What authority exists to deal with the problems and how effectively is it being exercised? and 4) What else can be done about the problems? Complete answers to all of these questions are not available.

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[1] Biomedical wastes include any wastes categorized as infectious or "red bag" wastes (e.g., blood and blood products, pathological wastes, etc.), hazardous (including low-level radioactive) wastes, and any other general refuse from hospitals, nursing homes, funeral homes, research laboratories, doctor and dental offices, veterinarian and any other type of medical facility. The main focus of regulatory concern has been on the portion of biomedical wastes which are defined as infectious and how they are classified (e.g., as a solid, hazardous, or "special" waste) and regulated. The total amount of hospital waste (general refuse and infectious waste) is 2.1 million tons/year, which is approximately 1.3% of the total municipal solid waste stream. Approximately 10-15% of hospital waste is classified as infectious.

Sufficient information does exist, however, to characterize the problems, discuss existing management efforts, and identify policy options. I will address these questions today based on OTA's preliminary assessment of biomedical waste management.

Biomedical waste disposal problems certainly do not begin with beach closings due to wash-ups of illegally dumped biomedical wastes, or with children playing with vials of contaminated blood disposed of in dumpsters outside medical offices, or with warehouses full of abandoned biomedical wastes--although this is where the public first learns about such problems. These are all legitimate sources of concern, but they are symptoms of a deeper problem of inconsistency, confusion and a lack of coordination both at and between every level of management--Federal, State, local and generator (e.g., hospitals, laboratories, etc.)--responsible for the handling, treatment and disposal of biomedical wastes.

Today, I would like to discuss three primary areas of concern regarding the management of biomedical wastes: 1) the nature of public concern and potential health and environmental risks from these wastes; 2) the implications, for waste treatment and its costs, of an uncertain and incongruous regulatory climate; and 3) future trends in the management of biomedical wastes resulting from two opposing tendencies in State (and possibly Federal) regulation of these wastes.

1) The nature of public concern about the management of biomedical wastes appears to be as much about aesthetics as it is about the degree of human health and environmental risks from these wastes. That is, the public is likely to find little comfort in being told that health and environmental risks from these wastes are likely to be small--they still do not want to see the wastes on their beaches. In point of fact, it is clear that some risks are real, even though the quantitative degree of risks posed by these wastes

is not known. It appears that the potential occupational risks (e.g., for healthcare workers, waste handlers, etc.) associated with the handling and proper disposal of these wastes may be as important as (or perhaps more serious than) possible risks posed to the general public.

2) An uncertain and incongruous regulatory climate complicates the development of adequate biomedical waste management systems. No Federal standards exist which comprehensively address the handling, transportation, treatment and disposal of biomedical wastes. Federal recommendations for biomedical waste management have been issued by several Federal authorities: the Environmental Protection Agency (EPA); the Centers for Disease Control (CDC); and the Occupational Health and Safety Administration (OSHA). Important variation exists between some of these recommendations. Without clear and consistent Federal guidance, States and localities have been left on their own to develop regulatory programs. Inconsistencies also exist both among States and between local requirements and those of a State, leaving hospitals and other generators of biomedical wastes with confusing and inconsistent guidance on how best to manage their wastes.

The agency with the most comprehensive authority to provide federal leadership on this issue is the EPA. EPA has authority under the Resource Conservation and Recovery Act (RCRA, P.L. 94-580) to regulate the handling, storage, treatment, transportation and disposal of biomedical wastes. Its regulations would apply to public and private facilities of all types. CDC does not have authority to issue regulations; OSHA may issue regulations or guidelines to protect the health and safety of workers, but they apply only to private facilities (unless a State extends the coverage to employees of public facilities as well).

3) Two regulatory tendencies by States (and possibly the Federal government) are driving and complicating biomedical waste management.

One regulatory tendency is toward defining greater quantities of biomedical wastes as potentially infectious, and the other tendency is toward tightening controls over incineration and other disposal options. Currently, approximately 70 percent of biomedical waste from hospitals is incinerated on-site, 15 percent is autoclaved (i.e., sterilized) and then landfilled, and the remaining is treated off-site (primarily by incineration). The implications of these general regulatory trends are that on-site incineration may become a less viable disposal option (due to the cost and feasibility of retrofitting existing, small incinerators) and that the use of large, off-site regional treatment facilities will increase. This in turn will involve more transportation of these wastes and a likely increase in public and environmental exposure due to accidental spills.

At least two types of policy activities can address the issues raised by these findings: 1) further development and enforcement of standard operating procedures (SOPs) by hospitals and other biomedical waste generators for the handling, storage, treatment and disposal of these wastes; and 2) further clarification and coordination of regulatory programs at the local, State, and especially Federal levels of government.

The Importance of Problems in Defining and Classifying Biomedical Wastes

Determining which portion of biomedical waste is infectious goes to the heart of the definitional problems associated with biomedical waste management. How *infectious* waste is defined varies around the country, and the particular definition used can greatly affect the cost and type of waste management practices. Most infectious waste is incinerated on-site, the cost of which may be roughly 10 times the cost of general waste disposal. The costs of commercial, off-site incineration may be approximately 5-20 times greater than for on-site incineration.

EPA defines infectious waste as "waste capable of producing an infectious disease."[2] William Rutala (University of North Carolina School of Medicine, and Director, Statewide Infection Control Program), however, has noted that no tests exist to objectively identify infectious wastes (unlike the case with toxic or radiological wastes). The inability to identify infectiousness through a test has led the EPA, CDC, States and other agencies to identify wastes as infectious or not depending on where it came from and what's in it. Some disagreement exists between the designations of and suggested treatments for infectious wastes identified by the CDC and EPA (see Table 1).

The major and important disagreement is over the designation of communicable disease/isolation wastes. In the past, CDC has not designated all communicable disease/isolation wastes as infectious and recommended only that they be treated according to hospital policy. It now recommends "universal precautions" for blood-borne communicable diseases (which include HIV, human immunodeficiency virus or AIDS, and HBV, hepatitis B virus) which entails healthcare workers to "adhere rigorously to infection-control precautions."

EPA designates these wastes as infectious and recommends steam sterilization or incineration as treatment and disposal methods. Previously, only waste from those patients in isolation by EPA's definition would be included in the infectious waste definition. Depending upon how hospitals and other generators of biomedical wastes interpret the CDC guidelines, it is possible as much as 70-90% of total hospital waste could be designated as infectious. The greatest effect this has on biomedical waste management is probably its handling and packaging within the facility. Special handling and packaging procedures are generally followed for infectious (i.e., "red bag") wastes versus general refuse.

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[2] Coupled with the definition is the need to consider at least four factors necessary for the induction of disease: 1) presence of a pathogen of sufficient virulence; 2) dose; 3) portal of entry; and 4) resistence of the host. (See EPA, 1986, Guide for Infectious Waste Management, p. 2-1.)

Apparently, hospitals and other medical facilities following the EPA guidelines have categorized increasing amounts of wastes as infectious, based in part on the CDC recommendations. The CDC, however, issued a statement in June, 1988 that, "Universal precautions are not intended to change waste management programs previously recommended by CDC for health-care settings." This attempt at clarification by CDC in part contributes to the confusion. It is not clear why the CDC is suggesting that its universal precautions guidance applies only to worker precautions and not waste handling procedures.

Several bills are pending in Congress which may clarify the classification and general definition issues, as part of the current RCRA reauthorization effort. This could also provide a mechanism for establishing a consistent Federal policy on biomedical waste management.

Risks from Biomedical Wastes

Proper handling, treatment and disposal of biomedical wastes should ensure minimal health and environmental risks. Yet, incidences of careless or illegal disposal can pose health risks and aesthetic problems, and they have helped create public apprehension over current biomedical waste management practices. Two main types of risks can be distinguished: occupational and public health/environmental. Occupational exposure to health workers and waste handlers is often cited as the primary type of health risk posed by biomedical wastes. Yet, only anecdotal information on the types and frequency of actual occupational injuries or illnesses due to handling biomedical wastes is readily available. Environmental risks can be posed directly by illegal or careless disposal practices or more indirectly through the emissions and ash treatment from biomedical waste incinerators. Limited data indicate that small, on-site incinerators can emit relatively high levels of some pollutants, but few risk assessments have been performed on these incinerators, hindering the ability to state definitively the relative degree of risk.

Occupational Exposure

Handling biomedical wastes--including initial handling, storage, and transportation--involves potential occupational risks and potential operational problems. Improper handling of biomedical wastes is closely linked to problems resulting from inadequately packaged and contained wastes as they move about the biomedical facilities and then are transported off-site for disposal. The integrity of packaging, particularly of such items as sharps (needles, scalpels, etc.) is critical to ensuring the containment of wastes during their collection, storage and transportation.

Some observers maintain that risks from biomedical wastes are minimal. For example, Rutala maintains that if wastes are properly packaged and handled, two of the factors necessary for disease transmission are not present, i.e. mode of transmission and portal of entry. Yet, those actually working in the housekeeping, janitorial, and refuse handling and disposal of biomedical wastes contend that packaging frequently (actual numbers are not available) does not hold wastes and workers are exposed. Bags and boxes may leak fluids or sharps may protrude.

The EPA Guide for Infectious Waste Management issued in May, 1986 contains limited recommendations for the proper handling, storage and transportation of these wastes. For example, with respect to the transportation of infectious wastes, the recommendations appear to be limited to movement of the wastes while on-site. Broader issues of recordkeeping and manifest systems to track wastes once they are taken off-site are not addressed.

The major Federal authority for protecting worker health and safety is the Occupational Safety and Health Act administered by the Department of Labor, Occupation Safety and Health Administration (OSHA). It should be noted, however, that OSHA does not have authority over public employers and thereby its regulations do not cover public healthcare workers or other public employees that work in State, county or city hospitals or medical facilties (unless a State OSHA law includes public entities). On October 30, 1987, the Department of Labor, OSHA, and the Department of Health and Human Services, CDC, issued a Joint Advisory Notice on "Protection Against Occupational Exposure to Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV)."

Essentially, the universal precaution concept is extended by the Joint Advisory Notice to occupational exposure to Hepatitis B. The Notice advises healthcare workers to assume that all body fluids and tissues they come into contact with are infected with a blood-borne disease. In addition, the Notice addresses such issues as, special work practices for the disposal of sharps, recommendations that employers provide free Hepatitis B immunization for any workers performing certain designated tasks and who test negative for Hepatitis antibodies.

Currently, only 20-40% of healthcare workers are immunized against Hepatitis B. As many as 300 healthcare workers die each year as a result of Hepatitis B infections or complications. How many of these cases are directly a result of waste handling is not known. It is not clear that all healthcare and other workers are being adequately informed of the Advisory Notice and trained in the new recommended procedures. Hospitals and other healthcare employers are reportedly providing minimal training programs and may be requiring workers to sign a form stating that they have been trained, in an attempt to limit any future liability to the facility.

OSHA is, in addition, seeking input through an Advance Notice of Proposed Rulemaking about what additional regulations might be needed to control occupational exposures to Hepatitis B and AIDS. Two unions, the Service Employees International Union (SEIU) and the American Federation of State, County and Municipal Employees (ASFME) petitioned OSHA in September, 1986 to issue a standard to protect healthcare workers from potential exposure to Hepatitis B and AIDS and make the Hepatitis B vaccination available to high risk workers free of charge. OSHA expects to issue regulations by the end of the year.

Environmental Risks from Incineration

As noted above, most biomedical waste is incinerated (approximately 85%, mostly on-site), while the rest is autoclaved and landfilled. I will discuss here possible public health and environmental risks associated with incineration since it is the most frequently used disposal method. The major known problems associated with biomedical incineration are that on-site incineration occurs primarily in small, modular units that tend to be poorly operated and to not have emissions control equipment (such as acid gas scrubbers). It is important to note that it is not necessarily the infectious nature of biomedical wastes that is contributing to risks from hospital/biomedical incinerators. Indeed, it is not known whether the infectious nature of biomedical waste actually contributes to risks from incinerator emissions.

Hospital incinerator emissions of both dioxins and furans (two known types of carcinogens) are, on the average, one to two orders of magnitude higher per unit of waste burned than are emissions from municipal solid waste incinerators. These higher emission rates for dioxins and furans may be the result of either design and operating differences, absence of control technologies, or differences between municipal and biomedical waste composition. What concerns some observers is that many of the hospital incinerators are located in heavily populated areas and appear to have relatively high emission rates of some pollutants of concern.

Incinerators must achieve minimum temperatures and/or residence times to ensure adequate destruction of pathogens and organic chemicals. If incinerators are operated poorly (e.g., low residence time, low temperature, poor mixing) destruction may be incomplete. It is not clear, however, that workers operating on-site incinerators are consistently receiving adequate training and consequently that most units are operating properly.

The concentrations of HCl (hydrogen chloride) emitted also appear to be higher, on average, than those from municipal waste combustors. One reason for this may be that biomedical waste contains up to five times as much PVC and other plastics as does municipal solid waste. The chlorine present in these wastes is converted to HCl during the combustion process.

Little data has been reported describing the concentrations of the constituents of biomedical incinerator ash. One study summarized dioxin and furan concentrations in fly ash from three hospital incinerators and four municipal incinerators. This limited data reveals that concentrations of both dioxins and furans are considerably higher in hospital incinerator fly ash than in municipal incinerator fly ash.

An Uncertain and Inconsistent Regulatory Climate

Biomedical waste disposal problems may in part be increasing because some operators of municipal landfills and incinerators, due to liability and worker safety considerations, are more frequently banning or refusing to take any biomedical wastes with suspected infectious waste materials in them. At least one State, Pennsylvania, has banned all hospital waste from municipal landfills and imposed a one year moratorium on the construction of any refuse (including biomedical waste) incinerators. In other areas, localities have considered bans or moratoriums on hospital waste incinerators. In this general context, many hospitals and other medical facilities across the country face difficult waste management problems.

The situation is complicated by an uncertain and inconsistent regulatory climate. Inconsistencies exist in the federal guidelines for States regarding definitions and management options suggested for biomedical/infectious waste. Currently, no federal standards exist which comprehensively address the handling, transportation, treatment and disposal of biomedical waste. This is likely to change to some extent as both the House and the Senate address the issue of biomedical wastes as part of the current reauthorization effort for the Resource Conservation and Recovery Act (RCRA). In addition, at least six bills have been introduced in Congress relating to biomedical waste issues.

The two Federal laws which most directly provide the Federal government with the authority to regulate or control the management of infectious wastes in some way are RCRA and the Occupational Safety and Health Act. In addition, New Source Performance Standards (NSPS) of the Clean Air Act may apply to hospital incinerators.[3] Any special State and local regulations for general and infectious wastes also apply. Hazardous waste provisions of RCRA apply to some chemical wastes, and radioactive waste disposal must conform with Nuclear Regulatory Commission standards.

The EPA has authority under RCRA to regulate the management and disposal of infectious waste. Although the language of the statute can be interpreted as requiring these wastes to be classified as hazardous and thus regulated under Subtitle C of RCRA, EPA has made another interpretation, which has not been legally challenged. In particular, EPA based largely on its determination of a lack of evidence that infectious wastes "cause harm to human health and the environment" sufficient to justify federal rulemaking, has instead issued a manual of recommendations for the management of biomedical wastes.

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[3] NSPS standards only apply to conventional priority pollutants. Potential air toxics, such as acid gases, trace metals, products of incomplete combustion, and dioxins and furans are not regulated at the national level at this time.

Yet, 12 years after the passage of RCRA and 8 years after making the determination that insufficient evidence existed to justify federal regulation, EPA has not vigorously undertaken or encouraged research to substantiate a lack of "a substantial present or potential hazard to human health or the environment" when a waste with infectious characteristics is improperly managed--which is a criterion of RCRA's (Section 1004(5)) definition of hazardous waste. It may be, however, that infectious and other biomedical wastes can be more effectively regulated as special wastes under RCRA, to avoid some of the less applicable and cumbersome provisions of hazardous waste regulation. This issue could be clarified as part of the current RCRA reauthorization effort.

The Secretary of the Department of Labor, through OSHA, could promulgate health and safety worker protection standards for infectious waste handling. At present, OSHA does regulate employee exposure to toxic substances under the General Industry Health Standards provision of the Occupational Health and Safety Act. Under Section 6 of the Act, the Labor Secretary is given general authority to promulgate such standards in order to assure the "attainment of the highest degree of health and safety protection of the employee." There is apparently nothing in the definitions of terms in the law which would preclude the application of the law's authority to the regulation of infectious wastes. At this time, however, OSHA has limited its specific activity on occupational exposure to infectious wastes to its rulemaking activity on controlling occupational exposures to Hepatitis B and AIDS.

Given the general lack of guidance on the national level, States have largely been left on their own to devise biomedical waste management programs. Important variation frequently exists both between States and between local requirements and those of a State. The variation in State activities is worthy of Federal attention for at least two reasons: stricter regulations in one State may encourage the shipment of wastes to other States with less stringent regulations; and many States having no Federal guidance apparently are "leap-frogging" one another to adopt the most stringent regulations.

The classification and management of biomedical wastes varies widely from State to State. At this time, 26 states classify infectious wastes as special wastes, 13 still classify them as hazardous wastes, and 12 classify them as non-hazardous wastes. Thirty-nine States have some type of regulations concerning infectious waste, at least 5 more States expect to regulate these wastes within the year, and at least 25 States expect changes to their existing regulations by next year.

The Council of State Governments notes that, without a federal baseline and without federal funds "to support the creation of a new enviornmental regulatory program [to manage infectious wastes], states, regardless of size or location, are in the process of meeting the public's demand for protection. It is [a] clear state-generated initiative . . ." (emphasis added). Local governments (e.g., towns, cities, and counties) may also develop special biomedical requirements of one sort or another. This has led to tremendous variation in the regulation of these wastes.

Further details regarding variation in biomedical waste management are contained in the Council of Government's survey report of State infectious waste programs. Eleven States split the jurisdiction over infectious wastes between solid waste management offices and health department offices, while other States designate one or the other of these types of offices as the lead authority. A majority of States target hospitals in their regulation of infectious wastes. Of these, three-quarters also regulate clinics, but only half also include doctor and dental offices, veterinary hospitals and other small generators (which could include residential wastes associated with medical home care). Five States currently exempt or are proposing to explicitly exempt small quantity generators from infectious waste regulations or policies.

More than half of the States require or plan to require pretreatment of infectious wastes before land disposal. Yet, under certain conditions, at least twelve States allow infectious wastes to be landfilled without treatment. Seventy-two percent of the States name incineration in their existing or proposed regulations as the recommended treatment for biomedical wastes. Several States require incineration. Twenty-three States are considering establishing performance standards, which could be in addition to any standards set by State air control agencies for incinerators which would apply. Twenty-seven States recommend steam sterilization for treatment of infectious wastes. Fourteen of these States specify or are considering specifying time/temperature/pressure standards. Eighteen States include chemical treatment as an alternative and other treatment alternatives are considered on a case by case basis by other States.

On-site handling of infectious wastes is usually governed by State health departments. They issue guidelines usually based on the periodically issued recommendations from the Joint Commission on Accreditation of Hospitals, EPA, CDC, and OSHA. Packaging and labeling requirements (e.g., rigid containers, double bagging, labeling) are included in the infectious waste regulations of 31 States. Storage requirements (currently in place in 7 States and being considered by 14 others) include such elements as the length of time wastes can be stored on-site. Transportation requirements (including the use of non-compacting trucks, which are not as prone to tear open "red bag" waste; truck labeling and shipping procedures; and cleaning procedures) and recordkeeping requirements (usually by the generator rather than a manifest system of submitting records to the State) are being considered by three-fifths of the States.

Looking Ahead: Likely Trends in Biomedical Waste Management

Two regulatory tendencies in biomedical waste management are apparent. One tendency is toward regulating greater quantities of biomedical wastes as potentially infectious, and the other is toward tightening controls over incineration and other disposal options. Hospital consultant Lawrence Doucet has noted, "More and more waste quantities are required to be treated as 'infectious,' of which smaller percentages are truly infectious; but, simultaneously, viable treatment and disposal options are being eliminated or made cost-prohibitive." Yet, since approximately 85% of all biomedical waste is already incinerated on-site, including whatever portion is designated as infectious, it is not clear how using different definitions affects on-site management. The definitional issue could become important (due to special cost and handling requirements), however, as more waste is treated off-site.

Several general trends appear to be emerging in the management of biomedical wastes, largely as a result of these regulatory tendencies. First, use of off-site commercial and regional incineration facilities is likely to increase, depending upon the standards set in new State and Federal regulations and on other cost and engineering factors which may make on-site disposal less feasible. Second, the transportation of biomedical wastes will increase if there is more off-site disposal, which will probably provide further impetus to establishing manifest or recordkeeping systems of some sort. Third, costs for disposing of biomedical wastes will increase, as more treatment becomes necessary and more stringent controls are adopted.

The stringency of the emission standards that biomedical incinerators will need to meet will determine the type and cost of air pollution controls necessary. The cost and engineering constraints (e.g., space) of retrofitting existing hospital incinerators with acid gas scrubbers and/or particulate matter controls may force many hospitals to cease on-site incineration in favor of off-site centralized incineration. Increased regulation of ash disposal may provide further impetus for hospitals to utilize off-site management of wastes or residuals. Yet, regional facilities are likely to face siting difficulties.

Increased transportation of biomedical wastes to regional facilities or long distances to out-of-State and in some cases out of the country facilities, will further increase disposal costs. It is also likely to increase health risks to the public given the greater potential for accidental exposure due to spills and possible illegal dumping or disposal of biomedical wastes. These concerns support proposals for manifest or recordkeeping systems of some sort to track the movement of these wastes. The Senate passed an act last week which will require EPA under RCRA to establish a model tracking system in New York and New Jersey for biomedical wastes. Similiar legislation is pending in the House.

Policy Options for Federal Action

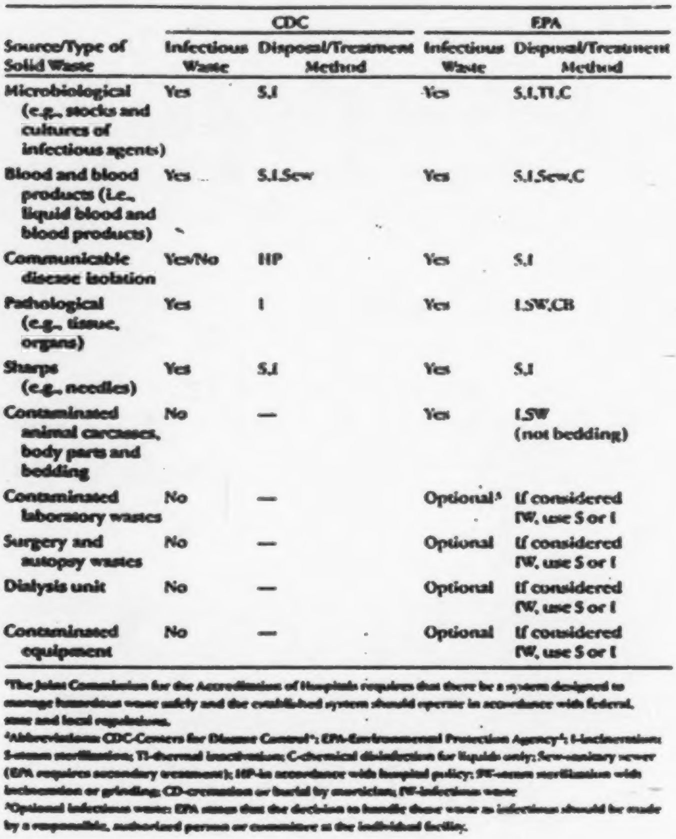
To best address issues associated with these trends, at least two types of policy activities are relevant: 1) further development and enforcement of standard operating procedures by hospitals and other biomedical waste generators for the handling, storage, treatment and disposal of these wastes; and 2) further clarification and coordination of regulatory programs at the local, State, and Federal levels of government. In particular, the desirability of further Federal involvement warrants discussion given the increased public concern over the management of biomedical wastes, the increased level of local and State regulatory activity which has led to nationwide variation in the treatment of these wastes, and the current absence of a comprehensive biomedical waste policy at the national level.

There are a number of potential areas for which the federal government could usefully clarify its policy(ies) regarding biomedical wastes. These include: 1) the designation of a lead authority (presumably EPA) to clarify the Federal definition, classification and regulation of biomedical wastes; 2) the establishment of emission standards and ash regulations for biomedical waste incinerators, autoclaving/landfilling performance standards and possibly operator training guidelines/regulations; 3) the establishment of handling, storage and transportation guidelines/regulations to ensure worker safety, and possible establishment of some sort of a manifest system; and 4) the promotion of research and data analysis on biomedical waste practices. Many of these issues could be addressed under RCRA's current authority or could be clarified as part of the RCRA re-authorization process. Other relevant statutes are the Occupational Safety and Health Act, the Clean Air Act, and (possibly) the Toxic Substances Control Act.

One critical need which is readily apparent and rarely disputed with respect to biomedical waste management is the need for more information on the risks posed by these wastes and on their actual management (e.g., ash and emission data), and for more research of alternative treatment technologies and management techniques. At a minimum, this preliminary assessment of the status of biomedical waste management practices in the U.S. today indicates that to adequately address the public's growing concern over the management of biomedical wastes, policymakers will need to address these issues expediently.

TABLE 1

CDC/EPA Designations of Solid Wastes and Recommended Treatment/Disposal Methods



	CDC		EPA	
Source/Type of Solid Waste	Infectious Waste	Disposal/Treatment Method	Infectious Waste	Disposal/Treatment Method
Microbiological (e.g., stocks and cultures of infectious agents)	Yes	S,I	Yes	S,I,TI,C
Blood and blood products (i.e., liquid blood and blood products)	Yes	S,I,Sew	Yes	S,I,Sew,C
Communicable disease isolation	Yes/No	HP	Yes	S,I
Pathological (e.g., tissue, organs)	Yes	I	Yes	I,SW,CB
Sharps (e.g., needles)	Yes	S,I	Yes	S,I
Contaminated animal carcasses, body parts and bedding	No	—	Yes	I,SW (not bedding)
Contaminated laboratory wastes	No	—	Optional[c]	If considered IW, use S or I
Surgery and autopsy wastes	No	—	Optional	If considered IW, use S or I
Dialysis unit	No	—	Optional	If considered IW, use S or I
Contaminated equipment	No	—	Optional	If considered IW, use S or I

[a] The Joint Commission for the Accreditation of Hospitals requires that there be a system designed to manage hazardous waste safely and the established system should operate in accordance with federal, state and local regulations.

[b] Abbreviations: CDC-Centers for Disease Control[a]; EPA-Environmental Protection Agency[a]; I-incineration; S-steam sterilization; TI-thermal inactivation; C-chemical disinfection for liquids only; Sew-sanitary sewer (EPA requires secondary treatment); HP-in accordance with hospital policy; SW-steam sterilization with incineration or grinding; CB-cremation or burial by mortician; IW-infectious waste

[c] Optional infectious waste: EPA states that the decision to handle these waste as infectious should be made by a responsible, authorized person or committee at the individual facility.

Source: Rutala, William, "Infectious Waste--A Growing Problem for Infectious Control," ASEPSIS: The Infectious Control Forum, 9(4): 2-6, 1987.

TESTIMONY

BY

DISTRICT ATTORNEY ELIZABETH HOLTZMAN

BEFORE

SMALL BUSINESS COMMITTEE
SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES

AUGUST 9, 1988

I WOULD LIKE TO THANK THE SMALL BUSINESS SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES FOR INVITING ME TO TESTIFY ON THE VERY SERIOUS ISSUE OF INFECTIOUS MEDICAL WASTE DISPOSAL.

THOUGH TIDE-BORNE SYRINGES, SOILED GAUZE, AND BLOODY VIALS ARE BECOMING AS UBIQUITOUS AS SUNBATHERS ONCE WERE ON MANY NORTHEASTERN BEACHES, REGULATION OF INFECTIOUS MEDICAL WASTE REMAINS SO LAX THAT A CARTER IN NEW YORK, FOR EXAMPLE, COULD DUMP 50 TONS OF IT ON A LONG ISLAND BEACH AND WALK AWAY WITH NOTHING MORE THAN A $2,500 FINE.

IN LIGHT OF SUCH TRIVIAL SANCTIONS, SOME GENERATORS OR TRANSPORTERS OF THE WASTE MAY FIND IT COST-EFFECTIVE TO DUMP THEIR DEBRIS RATHER THAN BEAR THE EXPENSE OF LEGAL DISPOSAL.

MORE THAN A YEAR AGO, MY OFFICE POINTED OUT THAT THERE MUST BE FELONY PENALTIES FOR THESE EGREGIOUS ASSAULTS ON OUR ENVIRONMENT AND THE PUBLIC HEALTH, BUT STILL NOTHING HAS BEEN DONE. HOW MANY HYPODERMICS HAVE TO WASH ASHORE BEFORE INFECTIOUS WASTE IS ADEQUATELY REGULATED?

THE INADEQUACY OF THE PENALTIES BECAME APPARENT IN NEW YORK TWO YEARS AGO WHEN 1,400 BAGS OF INFECTIOUS WASTE TURNED UP IN A BROOKLYN WAREHOUSE. THE BAGS CONTAINED SYRINGES, BLOODY BANDAGES, INTRAVENOUS TUBING, AND A JAR OF NEEDLES WITH A LABEL WARNING THOSE WHO TOUCHED IT TO NOTIFY THE NATIONAL CENTERS FOR DISEASE CONTROL.

A LONG ISLAND WASTE COMPANY AND ITS PRESIDENT WERE INDICTED ALLEGEDLY FOR FILING THREE FALSE DOCUMENTS WITH THE STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, CLAIMING TO HAVE PROPERLY INCINERATED THE WASTE. DURING A NOVEMBER, 1986 FIRE IN THE WAREHOUSE -- FOUR YEARS AFTER THE WASTE WAS SUPPOSEDLY INCINERATED -- FIRE FIGHTERS DISCOVERED WHAT ALLEGEDLY WAS THAT SAME WASTE IN OPENED RED BAGS. MY OFFICE AND THE CITY SANITATION DEPARTMENT TOGETHER WERE ABLE TO TRACK DOWN THE COMPANY ALLEGEDLY RESPONSIBLE, AND THE CASE IS SCHEDULED FOR TRIAL IN SEPTEMBER.

DESPITE THE SERIOUSNESS OF THIS CASE, MY OFFICE NEVER CHARGED THE COMPANY WITH THE ALLEGED WAREHOUSE DUMPING BECAUSE UNDER NEW YORK STATE LAW IMPROPER DUMPING OF INFECTIOUS WASTE WAS NOT EVEN A MISDEMEANOR OFFENSE. OUR FELONY INDICTMENT IN THE CASE RELATED SOLELY TO FILING FALSIFIED DOCUMENTS.

SHORTLY AFTER THE INDICTMENT LAST SUMMER, AS BEACHGOERS PLAYED IN THE SURF ALONG THE JERSEY SHORE, A 50-MILE SLICK OF HYPODERMIC NEEDLES, PILL BOTTLES, AND CRACK VIALS DRIFTED IN, EVENTUALLY COSTING LOCAL BUSINESSES AN ESTIMATED $1 BILLION IN LOST REVENUES, AND VACATIONERS THEIR SUMMER.

NEW JERSEY OFFICIALS, LIKE NEW YORK'S THIS SUMMER, WERE FRUSTRATED IN THEIR ATTEMPTS TO IDENTIFY THE OFFENDERS BOTH BECAUSE LABELS HAD WASHED OFF, AND BECAUSE THERE WAS NO TRACKING SYSTEM IN PLACE. AND THERE STILL IS NO SUCH SYSTEM.

THIS IS SIMPLY INEXCUSABLE; A MANIFESTING SYSTEM TO TRACK DISPOSAL MUST BE INSTITUTED SO THAT POLLUTERS CAN BE FOUND AND HELD ACCOUNTABLE.

UNLIKE INFECTIOUS WASTE, TOXIC WASTE DISPOSAL IS STRINGENTLY REGULATED BY FEDERAL AND NEW YORK STATE LAW. A MANIFESTING SYSTEM TRACKS TOXIC WASTE FROM THE TIME IT LEAVES A WASTE PRODUCER UNTIL IT REACHES AN APPROVED DISPOSAL SITE. MANIFEST FORMS ARE FILLED OUT BY THE PRODUCER, BY EACH TRANSPORTER THAT HANDLES IT, AND BY THE DISPOSAL FACILITY, WITH A COPY GOING TO THE STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION. THANKS TO THE SYSTEM, LAST MARCH MY OFFICE WAS SUCCESSFULLY ABLE TO PROSECUTE A BROOKLYN HAZARDOUS WASTE TREATMENT COMPANY THAT WAS ILLEGALLY HANDLING POTENTIALLY LETHAL PCB'S.

LICENSED ONLY TO TREAT AND HANDLE PAINT SOLVENTS, THE COMPANY REPEATEDLY SENT TRUCKLOADS OF PCB WASTES TO NON-PCB-LICENSED DISPOSAL FACILITIES. THESE FACILITIES BLOCKED THE SHIPMENTS, HOWEVER, BECAUSE THEY FOUND THEM TO BE CONTAMINATED WITH PCB'S. EACH REJECTED SHIPMENT WAS NOTED ON SEPARATE MANIFEST FORMS THAT WERE FILED WITH THE NEW YORK STATE ENVIRONMENTAL CONSERVATION DEPARTMENT. ALERTED BY A HANDFUL OF MANIFESTS MARKED "DISCREPANCY," THE DEPARTMENT CONTACTED MY OFFICE AND THE COMPANY WAS CAUGHT AND CONVICTED. A SIMILAR MANIFESTING SYSTEM IS NECESSARY FOR INFECTIOUS WASTE.

ALONG WITH MANIFESTING AND TOUGHER CRIMINAL PENALTIES, STATES SHOULD REQUIRE THAT SYRINGES, BLOOD VIALS, RUBBER GLOVES, AND OTHER MEDICAL SUPPLIES BE INDELIBLY MARKED, AND THAT SUPPLIERS KEEP CAREFUL RECORDS OF WHICH CUSTOMER IS SOLD WHICH SUPPLIES. UNDER THIS TWO-FOLD SYSTEM OF LABELING AND MANIFESTING, INVESTIGATORS COULD CHECK THE MARKINGS ON A BEACHED SYRINGE, IDENTIFY THE SUPPLY COMPANY, PINPOINT THE HOSPITAL THROUGH THE SUPPLIER'S RECORDS, AND CATCH THE HAULER THROUGH THE MANIFEST. WITHOUT LABELING, NOT EVEN AN AIRTIGHT MANIFESTING SYSTEM WOULD INVARIABLY ENABLE US TO TRACE FLOATING MEDICAL DEBRIS BACK TO ITS OWNER.

EVEN IF NEW YORK DRASTICALLY STRENGTHENS ITS REGULATION OF INFECTIOUS WASTE -- SOMETHING THAT IS UNLIKELY TO HAPPEN IN THIS LEGISLATIVE SESSION, DESPITE THE PUBLIC OUTCRY -- STRINGENT FEDERAL REGULATION WOULD STILL BE NECESSARY. WITH MOST OF THE STATE'S 2-MILLION-POUND WEEKLY OUTPUT OF INFECTIOUS TRASH HEADING FOR SOUTH CAROLINA AND VIRGINIA INCINERATORS -- OFTEN BY OUT-OF-STATE CARTER -- DISPOSAL IS AN INTERSTATE BUSINESS. ONCE A TRUCK CROSSES THE NEW YORK STATE LINE, IT IS OUT OF NEW YORK'S CONTROL. WE CANNOT FORCE OTHER STATES EITHER TO START MANIFESTING OR TO TURN OVER THEIR MANIFEST FORMS IF THEY DO HAVE A SYSTEM. THUS, STATE REGULATORS AND PROSECUTORS MIGHT NEVER KNOW IF A CARTER DUMPED ITS MEDICAL WASTE SHIPMENT IN NEW YORK, EN ROUTE TO A SOUTHERN INCINERATOR.

LABELING SHOULD ALSO BE A FEDERAL REQUIREMENT. OTHERWISE, NEW YORK COULD INITIATE THE STRICTEST LABELING PROGRAM IN THE

COUNTRY, AND STILL FIND UNTRACEABLE WASTE ON ITS BEACHES COURTESY OF NEW JERSEY OR CONNECTICUT.

IT IS ENCOURAGING TO SEE THAT THE SENATE HAS TAKEN ACTION ON THE MEDICAL WASTE CRISIS, PASSING A BILL LAST WEEK WHICH AUTHORIZES TOUGH FELONY PENALTIES FOR ILLEGALLY GENERATING, STORING, TREATING, TRANSPORTING, OR DUMPING INFECTIOUS MEDICAL WASTE. THE BILL ORDERS THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY TO CREATE A MANIFESTING SYSTEM, AND PROVIDES SANCTIONS OF UP TO $50,000 A DAY AND/OR 2 YEARS IN JAIL FOR FALSIFYING A FORM. ILLEGAL CARTING OR DUMPING BRINGS UP TO 5 YEARS IN JAIL, AND KNOWINGLY PLACING SOMEONE IN IMMINENT DANGER CARRIES A $250,000 FINE AND/OR 15 YEARS IN JAIL.

THOUGH THE FEDERAL BILL HAS MORE TEETH THAN NEW YORK'S BILL, AND SPECIFICALLY REQUIRES MANIFESTING, IT NEEDS TO GO FURTHER. THE BILL ORDERS MANIFESTING -- AND IMPOSES CRIMINAL PENALTIES-- ONLY IN NEW YORK, NEW JERSEY, AND CONNECTICUT, NOT THE ENTIRE COUNTRY. ASIDE FROM RAISING CONSTITUTIONAL QUESTIONS, SUCH LIMITATIONS COULD IMPEDE THE LEGISLATION'S EFFECTIVENESS. IF A CARTER BRINGS NEW YORK WASTE TO SOUTH CAROLINA, THE PAPER TRAIL CAN GET FUZZY. THE CARTER, FOR INSTANCE, MAY SUBCONTRACT TO ANOTHER CARTER FROM A STATE WHERE MANIFESTING IS NOT REQUIRED. ALSO, THE INCINERATOR OPERATOR IN SOUTH CAROLINA DOES NOT HAVE TO REPORT ANY INFORMATION TO NEW YORK. THERE WOULD OFTEN BE NO WAY TO DETERMINE WHETHER THE LOAD THAT ARRIVES AT AN INCINERATOR MATCHES THE LOAD THAT LEFT A NEW YORK GENERATOR.

FURTHERMORE, THE BILL DOES NOT REQUIRE THAT A COPY OF THE MANIFEST BE SENT TO THE E.P.A. THAT MEANS THE AGENCY WILL NOT BE ABLE TO MONITOR DISPOSAL, AND UNSCRUPULOUS HANDLERS COULD CONTINUE TO FOUL OUR BEACHES UNDETECTED.

ON THE OTHER HAND, ONE OF THE BEST THINGS ABOUT THE BILL IS THAT IT ALLOWS PROSECUTION BEFORE TRUCKLOADS OF NEEDLES AND GAUZE ARE FOUND FESTERING IN SOME WAREHOUSE. A PENDING NEW YORK STATE BILL, BY COMPARISON, WAITS UNTIL LIVES ARE ENDANGERED BEFORE APPLYING FELONY SANCTIONS. ILLICIT CARTERS CAN DRIVE THEIR MEDICAL CARGO ALL OVER THE STATE, BREAKING EVERY HANDLING RULE, AND NOT EVEN BE CHARGED WITH A MISDEMEANOR UNTIL THEY ACTUALLY DUMP THE TRASH. INFECTIOUS WASTE IS ESSENTIALLY A LOADED GUN, AND SHOULD BE LEGALLY RECOGNIZED AS SUCH. IN NEW YORK, UNLICENSED POSSESSION OF A LOADED GUN IS A FELONY BECAUSE IT IS LUDICROUS TO HAVE TO FOLLOW CRIMINALS AROUND UNTIL THEY SHOOT SOMEONE. THE SAME LOGIC CERTAINLY MUST APPLY TO ENVIRONMENTAL CRIMES.

ON THIS AND OTHER SCORES NEW YORK'S INFECTIOUS WASTE BILL IS ANEMIC. THERE IS NO MANIFESTING REQUIREMENT, NO LABELING, NO ALTERNATIVE TRACKING SYSTEM. AND THOUGH THE BILL AUTHORIZES PRISON TERMS AND $50,000 FINES FOR DUMPING INFECTIOUS WASTE, IT PLACES A SERIOUS OBSTACLE IN THE WAY OF OBTAINING FELONY

CONVICTIONS. PROSECUTORS MUST PROVE A "SUBSTANTIAL" RISK OF PHYSICAL INJURY -- NOT JUST A POTENTIAL RISK -- OR DUMPING IS MERELY A MISDEMEANOR.

LIKEWISE, UNDER REGULATIONS TO BE ANNOUNCED TOMORROW BY NEW YORK'S HEALTH AND ENVIRONMENTAL CONSERVATION DEPARTMENTS, GENERATORS, TRANSPORTERS, AND DISPOSERS OF INFECTIOUS WASTE DO HAVE TO FILL OUT MANIFESTS, BUT DO NOT HAVE TO FILE A COPY OF THE FORM WITH THE STATE ENVIRONMENTAL CONSERVATION DEPARTMENT-- LARGELY BECAUSE THE AGENCY CLAIMS TO BE OVERBURDENED WITH PAPERWORK.

THIS POSITION IS ABSURD. THE FILING SHOULD BE REQUIRED AND STATE OFFICIALS SHOULD DEVELOP A MORE SOPHISTICATED COMPUTERIZED SYSTEM TO MONITOR THE INFORMATION ON THE MANIFESTS.

HOW MUCH WORSE MUST THINGS BECOME BEFORE THE FEDERAL E.P.A. AND NEW YORK STATE TAKE SERIOUS AND SYSTEMATIC STEPS TO ATTACK THE PROBLEM? IT HAS BEEN MORE THAN A YEAR SINCE I CALLED FOR TOUGHER ACTION IN NEW YORK STATE; THAT HAS NOT YET HAPPENED. NEW JERSEY SENATORS BILL BRADLEY AND FRANK LAUTENBERG, AMONG OTHERS, ASKED THE E.P.A. ALMOST A YEAR AGO TO DEVISE A FEDERAL WASTE TRACKING PROGRAM. THEY WERE STILL WAITING FOR A RESPONSE WHEN THEY PROPOSED THEIR MEDICAL WASTE BILL LAST WEEK. AND ALTHOUGH NEW YORK'S 1987 LEGISLATION ON INFECTIOUS WASTE, WHICH THE NEW BILL WILL AMEND, ORDERED THE STATE HEALTH AND ENVIRONMENTAL CONSERVATION DEPARTMENTS TO ANNOUNCE REGULATIONS BY APRIL, 1988, NEITHER AGENCY HAD EVEN BEGUN WORK ON THEM AS OF EARLY JULY. EMERGENCY REGULATIONS WERE FINALLY DRAFTED LAST WEEK BY ORDER OF THE GOVERNOR.

THE RULES WERE CRITICAL BECAUSE WHOLE SECTIONS OF THE LEGISLATION HAD BEEN DELIBERATELY LEFT VAGUE, PENDING THE TWO AGENCIES' INPUT. FOR INSTANCE, WHEREAS THE LAW ONLY MANDATED A LOADING AND PROCESSING METHOD THAT MINIMIZED PUBLIC EXPOSURE TO INFECTIOUS WASTE, IT WAS UP TO THE ENVIRONMENTAL CONSERVATION AND HEALTH COMMISSIONERS TO SPECIFICALLY REQUIRE A MANIFESTING SYSTEM.

BUT ALONG WITH DEVELOPING REGULATIONS AND SPECIFIC REMEDIES, THE STATE AND FEDERAL GOVERNMENTS MUST START LOOKING AT THE MUCH LARGER ISSUE OF HOW TO COPE WITH AND CURTAIL THE PROLIFERATION OF MEDICAL WASTE. OVER THE PAST SEVERAL YEARS, HOSPITALS HAVE SHIFTED AWAY FROM GLASS PRODUCTS TO PLASTIC, CREATING MORE WASTE. MOREOVER, WHEN PLASTIC PRODUCTS ARE INCINERATED WITH ORDINARY PAPER TRASH, DANGEROUS DIOXINS ARE RELEASED INTO THE ATMOSPHERE, ACCORDING TO MANY EXPERTS. RECENTLY THE PUSH HAS BEEN FOR HOSPITALS TO BURN ALL THEIR OWN WASTE, WHICH COULD EXACERBATE THE AIR POLLUTION PROBLEM.

UNLESS AN OVERVIEW TO THE MEDICAL WASTE PROBLEM IS DEVELOPED, ONE HEALTH HAZARD MAY SIMPLY BE TRADED FOR ANOTHER.

TO ITS CREDIT, NEW JERSEY HAS LEGISLATION PENDING THAT NOT ONLY TIGHTENS ITS REGULATION OF INFECTIOUS WASTE, BUT WOULD SET UP A COMMISSION TO STUDY THE BROADER ISSUES AND FORGE A COMPREHENSIVE STATE PLAN. OTHER STATES, AS WELL AS THE FEDERAL GOVERNMENT, NEED TO FOLLOW THAT LEAD.

THANK YOU.

NEWS FROM
BROOKLYN DISTRICT ATTORNEY
ELIZABETH HOLTZMAN

FOR RELEASE: August 9, 1988

DISTRICT ATTORNEY HOLTZMAN URGES THE FEDERAL GOVERNMENT TO ACT ON MEDICAL WASTE CRISIS: CALLS STATE RESPONSE 'ANEMIC'

Brooklyn District Attorney Elizabeth Holtzman today told a House subcommittee that sanctions against generators and transporters of infectious medical waste are currently so trivial that it may be cost-effective for them to dump their debris rather than bear the expense of legal disposal.

Calling the legislative action on the state level "anemic," Holtzman urged Congress to pass a bill calling for a national manifest system to trace infectious medical waste and the labeling of medical materials, including vials, syringes and rubber gloves. She made her remarks before the Small Business Subcommittee on Regulation and Business Opportunities.

"State regulation of infectious medical waste remains so lax that a carter could dump 50 tons of it on a Long Island beach and walk away with nothing more than a $2,500 fine," said Holtzman.

In New York this summer -- as in New Jersey last year-- investigators and prosecutors have been frustated in their attempts to identify the offenders both because labels had washed off, and because no tracking system existed.

Holtzman applauded the recent action by the U.S. Senate on the medical waste crisis, which authorizes tough felony penalties for illegally generating, storing, treating, transporting or dumping infectious medical waste. She urged that the legislation be made nationwide in scope.

"Infectious waste is essentially a loaded gun and should be legally recognized as such," Holtzman said. "In New York, unlicensed possession of a loaded gun is a felony because it is ludicrous to have to follow criminals around until they shoot someone. The same logic certainly must apply to environmental crimes, where each offense can take many more victims," she added.

"There is still no system to track the dumpers of infectious medical waste in New York State," Holtzman told the subcommittee. "This is simply inexcusable; a manifesting system to track

-more-

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disposal must be instituted so that polluters can be found and held accountable." Holtzman noted that, in addition to ruining countless summer vacations, local businesses along the Northeast coast have lost millions of dollars in revenue.

Toxic waste, by contrast, is tracked from the time it leaves a manufacturer until it reaches an approved disposal site. Manifest forms are filled out by the manufacturer and by each transporter that handles it, with a copy going to the Department of Environmental Conservation. Last March, this tracking system enabled the Brooklyn D.A.'s office to successfully prosecute a Brooklyn waste treatment company that was illegally handling potentially lethal PCB's.

In November 1986, 1,400 bags of infectious medical waste were discovered abandoned in a Brooklyn warehouse, allegedly dumped by a Long Island waste company four years earlier. Though the D.A.'s office obtained a felony indictment in the case, the charges related solely to falsifying documents. The illegal dumping itself was not even considered a misdemeanor under state law.

Holtzman also called on the state and the federal government to require that syringes, blood vials, rubber gloves and other medical supplies be indelibly marked and that suppliers keep careful record of which customer is sold which lot numbers. "Without labeling, not even an airtight manifesting system would enable us to trace floating medical debris back to its owner," said Holtzman.

"The state and federal governments must start looking at the much larger issue of how to cope with and curtail the proliferation of medical waste," said Holtzman. Over the past several years, hospitals have shifted away from glass products to plastics, creating an enormous disposal problem, Holtzman noted. When these plastic products are incinerated with ordinary paper trash, dangerous dioxins are released into the atmosphere according to many experts.

"Unless an overview to the medical waste problem is developed, one health hazard will forever be traded for another," said Holtzman.

# # #

Prepared Statement of Joshua Weinstein

Mary's and my problems began some sixteen years ago with legislation mandating all municipal primary sewage plants to become secondary plants.

During this period of time, violations, fines and the like were frequently recorded, levied and ignored by the municipality.

The most recent incident, actually a continuation of a long history of discharges which began early in July this year.

A large deposit of sludge was discovered off the beach in a bed of seaweed. It's origin was obviously the municipality but as always they denied responsibility .

In the next two weeks extremely high counts of E. coli bacteria continued to be found in waters off the surf and only after the local health inspector placed the local plant under round the clock surveillance did the truth emerge;

The municipality was discharging raw untreated sewage directly into the ocean!

From the month of July to the present we have virtually been out of business! Our Inn has 40 rooms and on weekends in July we have up to 80% occupancy.

The weekend of July 8-10 we had 38 rooms rented (+/- $2500gross) The following weekend, July 15-17 we had 14 rooms rented(+/-$800) plus 19 cancellations. Not included in this are the usual requests for reservations for 1-4 weeks in advance. We have none for this period as compared to an average of 5 to 8 per day for "normal" times.

The month of August is, at this writing, a continuation of this disaster. This past weekend, August 5-7, we had 11 rooms rented; less than 25 % as opposed to 1987 when the same w/e we had 90%.

Keep in mind that this hotel is only open for business from Memorial Day to Labor Day.

What the rest of the summer will be like is of course unknown. But the key to all these economic problems as well as the health problems is the fear by the public generated by the mistrust and credibility of those responsible.

Charges and counter charges, accusations and counter accusations only serve to confuse the public. Lack of leadership on the part of the local, county, state, and federal authorities do nothing to restore our patronage.

Will there be residual effects? How Long? Can we hold on when our expenses continue, irregardless of weather, ocean conditions etc.?

Secondary effects of this problem are the loss jobs i.e. those who are employed by summer businesses. From bus boys to chamber-persons to painters, carpenters, bakery workers, filling stations etc. etc., are all affected directly by the lack of tourists.

Indirectly, supply houses, bottling plants, hardware stores and the like have been forced to reduce production and purchasing of goods.

I'd like to now give you some data as elicited from members of our recently formed CBC (Coastal Business Coalition)

A hot dog concession in Bradley Beach, down 60%
B&B in Ocean Grove 20%; Avon 80%
Supply house (sun screens, etc.) 40%
Private beach club 60%
Bike repairs/rental sales 25%

Solicited from Commissioner Gaynor of Bradley Beach projecting a $178,000 loss based on budgeted $550,000 anticipated sales of beach tickets.

Finally, a personal touch to all the above. We had bought the Ormond in 1985 hoping to make a go of it and eventually to retire from teaching. Ironically, this year_was to be the year of making or breaking ie either we keep the hotel and leave education or sell the hotel and continue teaching.

The months of May, June, and the first half of July were exceptional. I made the decision not to return and informed the system of same only to have the walls come tumbling down on July 11.

Mary and I are in a difficult position. We don't believe we can survive with me only having my pension to subsidize the business.

I am being pressured to make up my mind considering we're into the second week of August and school begins Sept. 6th.

Respectfully submitted,

State of Rhode Island and Providence Plantations
DEPARTMENT OF THE ATTORNEY GENERAL
72 Pine Street, Providence, RI 02903
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James E. O'Neil, *Attorney General*

REMARKS OF JAMES E. O'NEIL

Attorney General of Rhode Island

August 9, 1988

Subcommittee on Regulation & Business Opportunities

of the

House Committee on Small Business

Chairman Wyden, members of the Committee, good morning. I appreciate your invitation to appear before you and to testify concerning the extremely distressing issue of medical waste and its improper disposal.

I am confident that you are all well aware that medical waste has been washing ashore along practically all beaches of the Northeast coast, including those in the State of Rhode Island and Providence Plantations. I'm equally confident that each of you shares my outrage. As Attorney General of Rhode Island, and as a citizen, I'm not simply concerned with the presence of this waste along our coastline, but I am appalled that Federal law enforcement resources have not been rallied earlier in a well coordinated fashion to investigate, apprehend and prosecute the individuals or corporations responsible for this problem.

It is important that the seashore, our nation's most pristine natural resource, be saved from the onslaught of this foul debris.

It should be emphasized that the problem of medical waste, currently of epidemic proportions, is not simply a problem of recent vintage. In August 1987, the residents of the State of New Jersey were shocked when syringes and needles and other medical waste polluted their shoreline, resulting in the closing of some beaches during the height of the tourist season. This summer, one year later, several New York and New Jersey beaches have been closed due to the invasion of medical debris. This summer, we are faced with the same problem, but now it is greater in dimension, not limited to New York and New Jersey. Significantly, since June of this year, the contamination of our shoreline has slowly worked its way up the Northeast coast. [See Attachment A.]

June 3 and 4, 1988: Four (4) vials of blood washed up on Island State Park Beach, New Jersey. Press reports indicated that two (2) of the samples tested positive for AIDS; one (1) tested positive for Hepatitis B virus.

July 2 through 9, 1988: One hundred forty-one (141) vials of blood were found in Bayonne, New Jersey. Again, press reports indicated that five (5) of these samples proved positive for AIDS; one (1) sample proved positive for Hepatitis B serum.

July 6 through 9, 1988: Jones Beach, Long Island, New York was contaminated by vials of blood. Again, press reports indicated that AIDS and Hepatitus B virus were discovered among them.

July 13, 1988: Four (4) beaches in New York were closed when medical debris, some contaminated by Hepatitis B virus, was discovered.

July 14, 1988: The discovery of syringes forced the closing of beaches in West Haven and New Haven, Connecticut.

July 16, 1988: Rhode Island beaches became the victim of medical waste.

One hundred, thirty-five (135) specimens have been recovered as of last Thursday. [See Attachment B.] I now ask the Committee's indulgence while I display a representative sampling of the evidence recovered. As you see, medical debris found on Rhode Island beaches includes: syringes and needles, a colostomy bag, catheters, laboratory test tubes, an orthopedic cast, an IV bottle, portions of respirators and other hospital equipment.

July 17, 1988: The now familiar syringes, needles and other items of medical waste washed ashore in Massachusetts. You have been given a photocopy of one of the items found there. [See Attachment C.] It is a sign bearing the letters NYC-EMS, which are the initials for New York City Emergency Medical Service. The City of New York provides these signs to hospitals, which in turn issue them to their Emergency Medical Technicians. The EMTs attach them to their license plates to obtain parking privileges.

As I said, discovery of similar debris on our coastline continues to this date.

Tracking of medical waste by computer modeling has been conducted by the New Jersey Department of Environmental Protection, the New York Department of Environmental Conservation and Professor Malcolm L. Spaulding of the University of Rhode Island. These reports indicate that this waste most likely originated in New York Harbor.

Frankly, I did not need these scientific models to lead me to such a conclusion. As a young man, I personally worked in the fishing industry. I remain well acquainted with a number of offshore commercial fishermen. They have told me that they feared the problem which we are now experiencing. They have shared with me their horror stories of hospital sheets becoming snagged in their nets as they dragged off the Northeast coast.

The point of my appearance before this subcommittee today is to state clearly and unequivocally that **the problem of medical waste demands immediate Federal action**. Last week, I met with EPA Administrator Lee Thomas, who promised to take action to address this problem. A week earlier, I met with U.S. Attorney Andrew Maloney of the Eastern District of New York. Mr. Maloney was extremely cooperative and equally concerned. He has taken action to establish a coordinated approach to the problem by forming a task force, comprised of the United States Coast Guard, the FBI and other investigative agencies. He has graciously accepted my offer to include an attorney from my office as a representative on that task force. I praise Mr. Maloney for his efforts.

I have discussed the medical waste problem with the regional Coast Guard Commanders and the law enforcement agencies of the Northeast states. On the basis of these discussions, and further investigation by my department, it is clear that a strong and vigorous effort by the Federal government, in cooperation with state law enforcement officials, must be mounted in order to eliminate this national problem. The welfare of the citizens of the State of Rhode Island and all states demands that our health and safety not be threatened by the lack of enforcement. Clearly, a well coordinated, all encompassing Federal law enforcement effort is immediately necessary.

Certainly, given the pervasiveness of the problem of medical waste and the fragile nature of our oceans, we must be vigilant in ensuring that our most precious national resource is preserved.

Prior to being elected Attorney General of the State of Rhode Island, I served as an attorney with the United States Department of Justice for 14 years, 12 of those years as an Assistant United States Attorney. Thus, I am in the unique position to view law enforcement from both a state and a federal perspective. I assure this Committee that federally promulgated and federally enforced regulation of medical waste is essential to combat this heinous crime against our environment.

The Environmental Protection Agency is faced with the problem of stemming the flow of all pollutants into our oceans. However, there is inconsistency in EPA policy. During my conversation last Wednesday, August 3, with EPA Administrator Thomas, he expressed sincere concern, and recognized the problem posed by medical waste.

Mr. Thomas also recognized the problem posed by ocean dumping taking place 106 miles off the Northeast coast in an area identified as Hudson Canyon. Conversely, and most importantly, EPA contemporaneously announced that it had reached an agreement with the City of New York, which if approved by the Court, would result in prolonging the ocean dumping of New York's municipal sludge until 1998. [See Attachment D.] Yet, EPA has not even determined the toxicity of the sludge being deposited into Hudson Canyon by the City of New York.

These significant inconsistencies within EPA lead me to question its effectiveness. It is imperative that the Environmental Protection Agency recognize its responsibility and take action immediately -- not only on the medical waste pollution, but on the broader issue of ocean dumping. Our oceans are too vital a resource to be subjected to such degradation.

In conclusion, I believe that this Committee has before it one of the most important issues facing our nation at this time - the preservation of our ocean resources. It is imperative that we establish a comprehensive strategy to address this problem. We must place the menace presented by medical waste in proper perspective.

There can be only one response: **We must stop the dumping**.

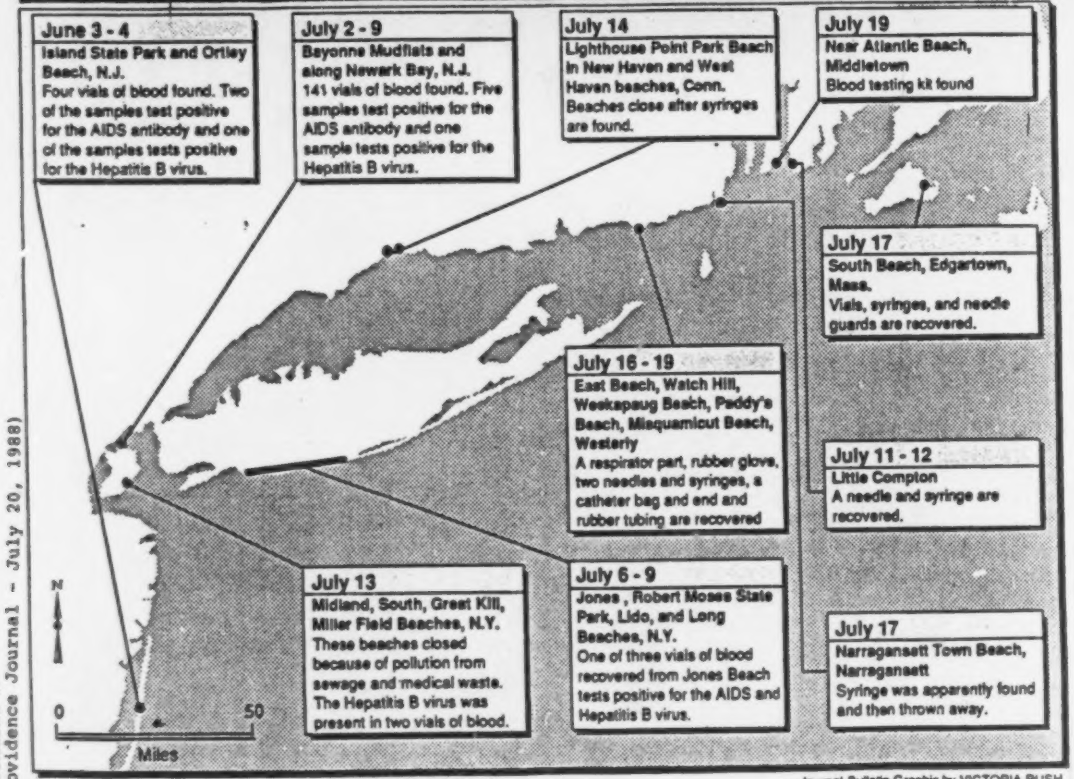
I respectfully request that this Committee consider developing the means to regulate the generators and transporters of medical waste. I further request that this Committee employ the power of Congress to ensure that EPA immediately institute a well coordinated, comprehensive law enforcement approach to attack the precursors of the medical waste problem.

I also urge the Committee to employ the power of Congress to require the Environmental Protection Agency to initiate effective law enforcement measures to ensure that our beaches do not continue to be the dumping ground of medical waste. At a minimum, the EPA should use the resources which are currently available and have been offered to it, including the United States Coast Guard and the investigatory agencies of the states involved.

Thank you Chairman Wyden and members of the Committee for this opportunity to appear before you this morning.

Attachment ^
(Providence Journal - July 20, 1988)

The tide of medical waste



June 3 - 4
Island State Park and Ortley Beach, N.J.
Four vials of blood found. Two of the samples test positive for the AIDS antibody and one of the samples tests positive for the Hepatitis B virus.

July 2 - 9
Bayonne Mudflats and along Newark Bay, N.J.
141 vials of blood found. Five samples test positive for the AIDS antibody and one sample tests positive for the Hepatitis B virus.

July 14
Lighthouse Point Park Beach in New Haven and West Haven beaches, Conn.
Beaches close after syringes are found.

July 19
Near Atlantic Beach, Middletown
Blood testing kit found

July 17
South Beach, Edgartown, Mass.
Vials, syringes, and needle guards are recovered.

July 16 - 19
East Beach, Watch Hill, Weekapaug Beach, Paddy's Beach, Misquamicut Beach, Westerly
A respirator part, rubber glove, two needles and syringes, a catheter bag and end and rubber tubing are recovered

July 11 - 12
Little Compton
A needle and syringe are recovered.

July 13
Midland, South, Great Kill, Miller Field Beaches, N.Y.
These beaches closed because of pollution from sewage and medical waste. The Hepatitis B virus was present in two vials of blood.

July 6 - 9
Jones, Robert Moses State Park, Lido, and Long Beaches, N.Y.
One of three vials of blood recovered from Jones Beach tests positive for the AIDS and Hepatitis B virus.

July 17
Narragansett Town Beach, Narragansett
Syringe was apparently found and then thrown away.

Information compiled by Journal-Bulletin staff writer COLLEEN FITZPATRICK

—Journal-Bulletin Graphic by VICTORIA RUSH

ATTACHMENT B-Page 1

PHYSICAL EVIDENCE -- MEDICAL WASTE FOUND ON R.I. SHORELINE
NEEDLES AND SYRINGES

Weekapaug Beach, Westerly	7/18	1 Needle & Syringe
Bristol	7/19	1 Syringe
South Kingstown	7/19	1 Needle & Syringe
Narragansett, Scarborough Beach	7/20	1 Syringe, 1 Needle
Westerly, Seaside Beach	7/22	1 Needle & Syringe
Barrington	7/23	1 Syringe
Newport, Fort Adams	7/23	1 Needle & Syringe
Middletown, Second Beach	7/23	1 Needle
Narragansett	7/23	1 Syringe
Pawcatuck River, Margin Street	7/23	1 Needle & Syringe
Portsmouth	7/24	1 Needle & Syringe
Cranston, Port Edgewood Marina	7/25	1 Needle & Syringe
Tiverton, North Court Beach	7/25	1 Large Syringe
Litle Compton	7/25 to 7/31	Assorted Waste Containers; Needle & Syringe
Narragansett, Bonnet Shores	7/26	1 Syringe
Jamestown, Beavertail	7/26	1 Needle & Syringe; Prescription Bottle; Plastic Tube
East Providence, Sabins Point	7/26	3 Needles & 3 Syringes
East Providence, Bullocks Cove	7/27	1 Needle & Syringe
Westerly, Misquamicut Beach	7/27	1 Syringe
Little Compton	7/27	1 Needle & Syringe
Narragansett, Wheeler State Beach	7/27	1 Needle & Syringe, 1 Extra Syringe; Sterile Sodium Chloride Container
Westerly Beach	7/28	2 Needles; 2 Syringes
Warwick	7/28	1 Syringe
Westerly	7/28	1 Syringe
Westerly, Andrea Beach	7/29	1 Syringe
Prudence Island State Beach	7/30	1 Needle & Syringe
Westerly Beach	8/2	1 Needle; 1 Syringe
Bristol, Blithewold Beach	8/3	1 Syringe
Bristol, Union State Beach	8/3	1 Needle & Syringe
Point Judith	unkn	1 Needle & Syringe; Plastic Tube
Hopkinton, Pawcatuck River	unkn	1 Needle & Syringe

ATTACHMENT B-Page 2

PHYSICAL EVIDENCE -- MEDICAL WASTE FOUND ON R.I. SHORELINE
**ASSORTED MEDICAL WASTE **

Middletown, First Beach	7/19	Test Vial Kit
Westerly	7/19	1 Clear Tube; 1 Catheter Tube, 1 Plastic Bag; 1 Red Bag Used to Dispose of Medical Waste
Westerly	7/19	1 1000 ml IV Bottle
Westerly, Misquamicut Beach	7/21	1 Plastic Catheter Tip
Westerly, Misquamicut State Beach	7/22	1 Respirator Tube
Westerly, Weekapaug Beach	7/23	1 Orthopedic Cast
Narraagansett, Town Beach	7/25	1 Blue Plastic bag (First Moments, new parents sample kit)
Middletown, Sachuset Point	7/26	Prescription Vial Filled in Catskill, N.Y. on 6/3/88
Westerly	7/26	1 Butterfly Needle; IV Tubing; 1 Needle; 1 Plastic Wrap
Unknown Location	7/29	1 Needle; 1 Syringe; 1 Rubber Glove; Vials
Jamestown, Mackerel Cove	7/29	1 Specimen Tube; Tubing
Warwick	7/30	1 Colostomy Bag; 1 Plastic Bottle
Jamestown, Small Beach	8/4	1 Large Needle; 1 Bottle
East Providence, Metacomet Pond	unkn	1 Large Syringe

ATTACHMENT B-Page 3

PHYSICAL EVIDENCE -- MEDICAL WASTE FOUND ON R.I. SHORELINE
HOSPITAL WASTE

Westerly, Weekapaug Beach	7/17	Surgical Glove
Westerly, Watch Hill Beach	7/18	1 Respirator Part; 1 Plastic Bag
Watch Hill	7/18	1 Plastic Catheter
Westerly, Seaside Beach	7/19	1 Plastic Dosage Spoon
Westerly, Misquamicut State Beach	7/20	1 Rubber Glove
Jamestown	7/21	1 Surgical Mask
East Matunuck	7/22	1 Rubber Surgical Glove
Barrington	7/23	1 Surgical Glove
South Kingstown, Green Hill Beach	7/23	1 Plastic Glove; 1 Bottle
East Matunuck	7/24	1 Surgical Glove; 1 Plastic Bottle
Jamestown, Fort Getty	7/24	1 Ventolin Inhaler; Felt Wrap
Little Compton	7/24	1 Pill Container Cap with name Eckerd Drug Stores on it (chain of pharmacies from Fla. to N.J.); 1 Keftab Pharmaceutical Company Promotional Pen; 1 Plastic Handle
Cranston, Providence River	7/25	1 Plastic Respirator Bag
Narragansett, Scarborough Beach	7/25	1 IV Tubing
Jamestown, Halls Cove	7/25	1 Glass Medicine Bottle;
Westerly, Windjammer Beach	7/25	1 Plastic Medical Cover
Narragansett, Town Beach	7/25	1 Surgical Glove
Middletown	7/25	Hospital Adhesive Tape
Westerly	7/26	1 Rubber Glove
Newport	7/27	Surgical Gloves
Westerly	7/27	1 Syringe Wrapper
Misquamicut	7/27	1 IV Bag
Westerly	7/27	1 Plastic Bag; 1 Bottle Marked "Sterilization Gas Amprolene"
Westerly	7/27	Plastic Hospital ID Bracelet; 1 Plastic Bag; Disposable Plastic Gloves
Westerly	7/28	1 Sample Bottle of Prescription Medication
Newport, Gooseberry Beach	7/28	1 Plastic Bottle; 3 Capsules
Westerly, Dunes Beach	7/29	1 Plastic Cover
Westerly	7/29	1 Syringe; Tubing
Narragansett	7/30	1 Plastic Cap; Plastic Tubing
Jamestown, Beavertail	7/30	Plastic Tubing
Warwick	7/31	1 Emesis Basin; Assorted Bottles
Charlestown, East Beach	7/31	1 Plastic Bottle
Unknown	8/2	1 Rubber Glove
East Providence, Watchemoket Cove	8/3	1 Plastic Vial containing unknown liquid
Charlestown, West Beach	8/4	1 Syringe Cover; Plastic Tubing
South Kingstown, Green Hill Beach	unkn	4 Red Needle Protectors
Westerly	unkn	1 Bottle Hydrogen Peroxide; 3 Colored Tops; 1 Sanitary Napkin

ATTACHMENT B-Page 4
COMBINED LIST OF MEDICAL WASTE FOUND ON R.I. SHORELINE

Westerly, Weekapaug Beach	7/17	Surgical Glove
Weekapaug Beach, Westerly	7/18	1 Needle & Syringe
Westerly, Watch Hill Beach	7/18	1 Respirator Part; 1 Plastic Bag
Watch Hill	7/18	1 Plastic Catheter
Bristol	7/19	1 Syringe
South Kingstown	7/19	1 Needle & Syringe
Middletown, First Beach	7/19	Test Vial Kit
Westerly	7/19	1 Clear Tube; 1 Catheter Tube, 1 Plastic Bag; 1 Red Bag Used to Dispose of Medical Waste
Westerly	7/19	1 1000 ml IV Bottle
Westerly, Seaside Beach	7/19	1 Plastic Dosage Spoon
Narragansett, Scarborough Beach	7/20	1 Syringe, 1 Needle
Westerly, Misquamicut State Beach	7/20	1 Rubber Glove
Westerly, Misquamicut Beach	7/21	1 Plastic Catheter Tip
Jamestown	7/21	1 Surgical Mask
Westerly, Seaside Beach	7/22	1 Needle & Syringe
Westerly, Misquamicut State Beach	7/22	1 Respirator Tube
East Matunuck	7/22	1 Rubber Surgical Glove
Barrington	7/23	1 Syringe
Newport, Fort Adams	7/23	1 Needle & Syringe
Middletown, Second Beach	7/23	1 Needle
Narragansett	7/23	1 Syringe
Pawcatuck River, Margin Street	7/23	1 Needle & Syringe
Westerly, Weekapaug Beach	7/23	1 Orthopedic Cast
Barrington	7/23	1 Surgical Glove
South Kingstown, Green Hill Beach	7/23	1 Plastic Glove; 1 Bottle
Portsmouth	7/24	1 Needle & Syringe
East Matunuck	7/24	1 Surgical Glove; 1 Plastic Bottle
Jamestown, Fort Getty	7/24	1 Ventolin Inhaler; Felt Wrap
Little Compton	7/24	1 Pill Container Cap with name Eckerd Drug Stores on it (chain of pharmacies from Fla to N.J.); 1 Keftab Pharmaceutical Company Promotional Pen; 1 Plastic Handle
Cranston, Port Edgewood Marina	7/25	1 Needle & Syringe
Tiverton, North Court Beach	7/25	1 Large Syringe
Narraagansett, Town Beach	7/25	1 Blue Plastic Bag (First Moments, new parents sample kit)
Cranston, Providence River	7/25	1 Plastic Respirator Bag
Narragansett, Scarborough Beach	7/25	1 IV Tubing
Jamestown, Halls Cove	7/25	1 Glass Medicine Bottle;
Westerly, Windjammer Beach	7/25	1 Plastic Medical Cover
Narragansett, Town Beach	7/25	1 Surgical Glove
Middletown	7/25	Hospital Adhesive Tape
Litle Compton	7/25 to 7/31	Assorted Waste Containers; Needle & Syringe

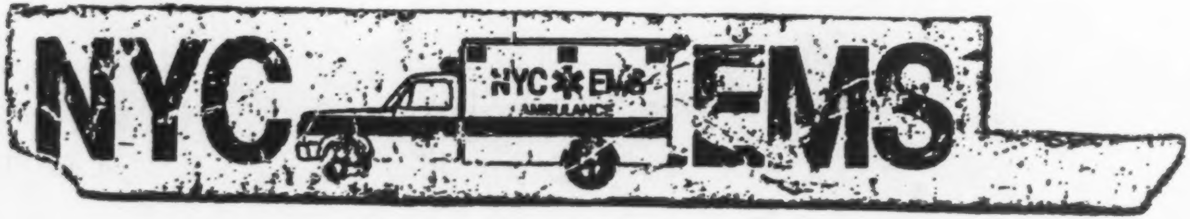
ATTACHMENT B-Page 5
COMBINED LIST OF MEDICAL WASTE FOUND ON R.I. SHORELINE

Narragansett, Bonnet Shores	7/26	1 Syringe
Jamestown, Beavertail	7/26	1 Needle & Syringe; Prescription Bottle; Plastic Tube
East Providence, Sabins Point	7/26	3 Needles & 3 Syringes
Middletown, Sachuset Point	7/26	Prescription Vial Filled in Catskill, N.Y. on 6/3/88
Westerly	7/26	1 Butterfly Needle; IV Tubing; 1 Needle; 1 Plastic Wrap
Westerly	7/26	1 Rubber Glove
East Providence, Bullocks Cove	7/27	1 Needle & Syringe
Westerly, Misquamicut Beach	7/27	1 Syringe
Little Compton	7/27	1 Needle & Syringe
Newport	7/27	Surgical Gloves
Westerly	7/27	1 Syringe Wrapper
Misquamicut	7/27	1 IV Bag
Westerly	7/27	1 Plastic Bag; 1 Bottle Marked "Sterilization Gas Amprolene"
Westerly	7/27	Plastic Hospital ID Bracelet; 1 Plastic Bag; Disposable Plastic Gloves
Narragansett, Wheeler State Beach	7/27	1 Needle & Syringe, 1 Extra Syringe; Sterile Sodium Chloride Container
Westerly Beach	7/28	2 Needles; 2 Syringes
Warwick	7/28	1 Syringe
Westerly	7/28	1 Syringe
Westerly	7/28	1 Sample Bottle of Prescription Medication
Newport, Gooseberry Beach	7/28	1 Plastic Bottle; 3 Capsules
Westerly, Andrea Beach	7/29	1 Syringe
Unknown Location	7/29	1 Needle; 1 Syringe; 1 Rubber Glove; Vials
Jamestown, Mackerel Cove	7/29	1 Specimen Tube; Tubing
Westerly, Dunes Beach	7/29	1 Plastic Cover
Westerly	7/29	1 Syringe; Tubing
Prudence Island State Beach	7/30	1 Needle & Syringe
Warwick	7/30	1 Colostomy Bag; 1 Plastic Bottle
Narragansett	7/30	1 Plastic Cap; Plastic Tubing
Jamestown, Beavertail	7/30	Plastic Tubing
Warwick	7/31	1 Emesis Basin; Assorted Bottles
Charlestown, East Beach	7/31	1 Plastic Bottle
Westerly Beach	8/2	1 Needle; 1 Syringe
Unknown	8/2	1 Rubber Glove
Bristol, Blithewold Beach	8/3	1 Syringe
Bristol, Union State Beach	8/3	1 Needle & Syringe
East Providence, Watchemoket Cove	8/3	1 Plastic Vial containing unknown liquid
Jamestown, Small Beach	8/4	1 Large Needle; 1 Bottle
Charlestown, West Beach	8/4	1 Syringe Cover; Plastic Tubing
Point Judith	unkn	1 Needle & Syringe; Plastic Tube
Hopkinton, Pawcatuck River	unkn	1 Needle & Syringe
East Providence, Metacomet Pond	unkn	1 Large Syringe
South Kingstown, Green Hill Beach	unkn	4 Red Needle Protectors
Westerly	unkn	1 Bottle Hydrogen Peroxide; 3 Colored Tops; 1 Sanitary Napkin

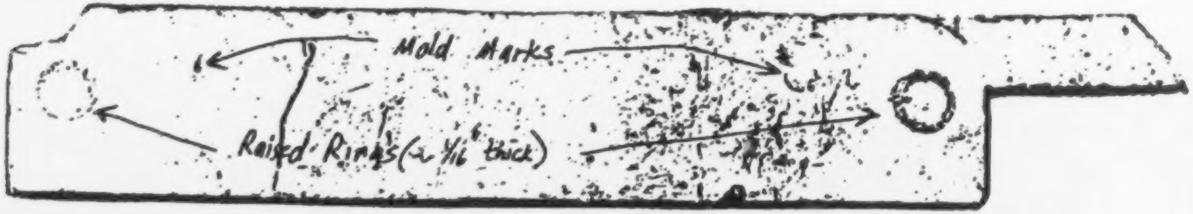
ATTACHMENT C

Thick white plastic (~ 1/8" thick) – actual size
Blue Lettering / orange stripe on ambulance

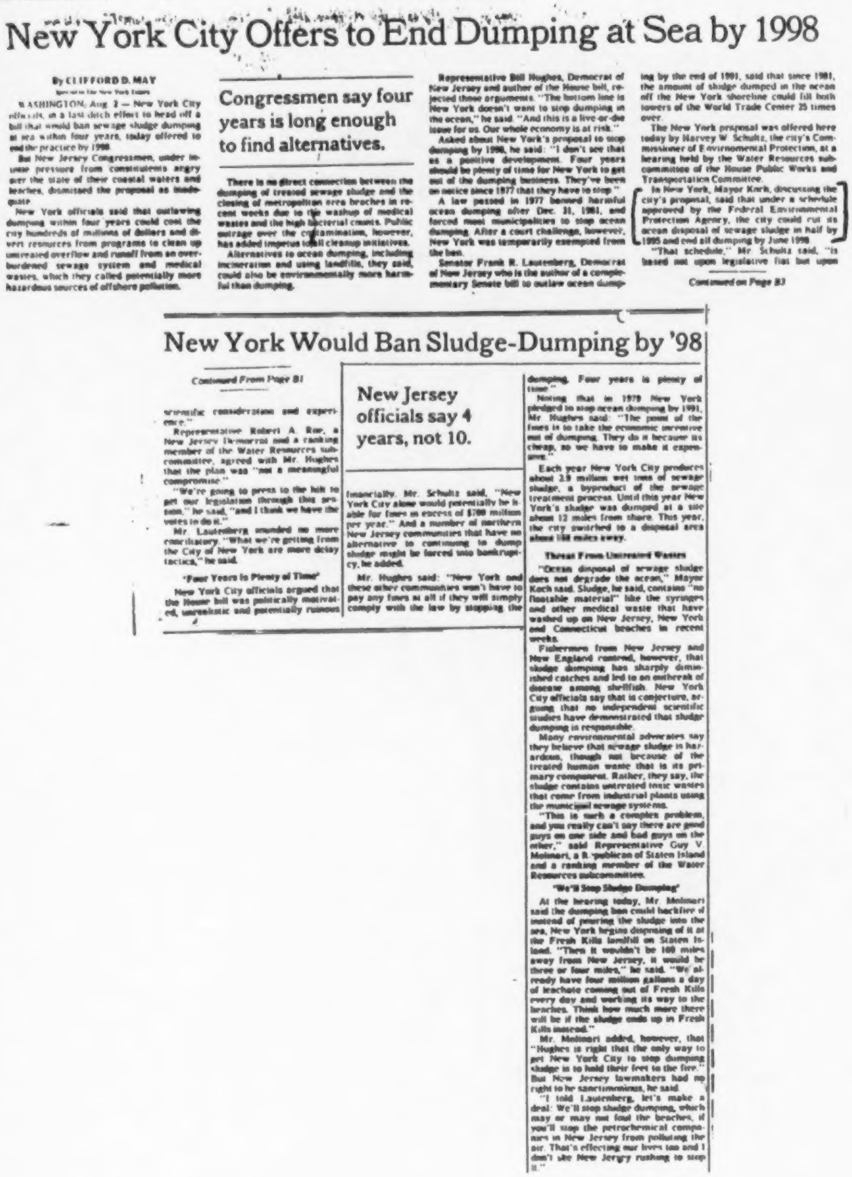
Side 1


NYC
EMS
NYC ✱ EMS
AMBULANCE

Side 2


Mold Marks
Raised Rings (~ 1/16" thick)

Attachment D (New York Times - August 3, 1988)



New York City Offers to End Dumping at Sea by 1998

By CLIFFORD D. MAY

Special to The New York Times

WASHINGTON, Aug. 2 — New York City officials, in a last-ditch effort to head off a bill that would ban sewage sludge dumping at sea within four years, today offered to end the practice by 1998.

But New Jersey Congressmen, under intense pressure from constituents angry over the state of their coastal waters and beaches, dismissed the proposal as inadequate.

New York officials said that outlawing dumping within four years could cost the city hundreds of millions of dollars and divert resources from programs to clean up untreated overflow and runoff from an overburdened sewage system and medical wastes, which they called potentially more hazardous sources of offshore pollution.

Congressmen say four years is long enough to find alternatives.

There is no direct connection between the dumping of treated sewage sludge and the closing of metropolitan area beaches in recent weeks due to the washup of medical wastes and the high bacterial counts. Public outrage over the contamination, however, has added impetus to all cleanup initiatives.

Alternatives to ocean dumping, including incineration and using landfills, they said, could also be environmentally more harmful than dumping.

Representative Bill Hughes, Democrat of New Jersey and author of the House bill, rejected those arguments. "The bottom line is New York doesn't want to stop dumping in the ocean," he said. "And this is a live-or-die issue for us. Our whole economy is at risk."

Asked about New York's proposal to stop dumping by 1998, he said: "I don't see that as a positive development. Four years should be plenty of time for New York to get out of the dumping business. They've been on notice since 1977 that they have to stop."

A law passed in 1977 banned harmful ocean dumping after Dec. 31, 1981, and forced most municipalities to stop ocean dumping. After a court challenge, however, New York was temporarily exempted from the ban.

Senator Frank R. Lautenberg, Democrat of New Jersey who is the author of a complementary Senate bill to outlaw ocean dumping by the end of 1991, said that since 1981, the amount of sludge dumped in the ocean off the New York shoreline could fill both towers of the World Trade Center 25 times over.

The New York proposal was offered here today by Harvey W. Schultz, the city's Commissioner of Environmental Protection, at a hearing held by the Water Resources subcommittee of the House Public Works and Transportation Committee.

In New York, Mayor Koch, discussing the city's proposal, said that under a schedule approved by the Federal Environmental Protection Agency, the city could cut its ocean disposal of sewage sludge in half by 1995 and end all dumping by June 1998.

"That schedule," Mr. Schultz said, "is based not upon legislative fiat but upon

Continued on Page B3

New York Would Ban Sludge-Dumping by '98

Continued From Page B1

scientific considerations and experience."

Representative Robert A. Roe, a New Jersey Democrat and a ranking member of the Water Resources subcommittee, agreed with Mr. Hughes that the plan was "not a meaningful compromise."

"We're going to press to the hilt to get our legislation through this session," he said, "and I think we have the votes to do it."

Mr. Lautenberg sounded no more conciliatory. "What we're getting from the City of New York are more delay tactics," he said.

'Four Years Is Plenty of Time'

New York City officials argued that the House bill was politically motivated, unrealistic and potentially ruinous financially. Mr. Schultz said, "New York City alone would potentially be liable for fines in excess of $700 million per year." And a number of northern New Jersey communities that have no alternative to continuing to dump sludge might be forced into bankruptcy, he added.

New Jersey officials say 4 years, not 10.

Mr. Hughes said: "New York and these other communities won't have to pay any fines at all if they will simply comply with the law by stopping the dumping. Four years is plenty of time."

Noting that in 1979 New York pledged to stop ocean dumping by 1991, Mr. Hughes said: "The point of the fines is to take the economic incentive out of dumping. They do it because its cheap, so we have to make it expensive."

Each year New York City produces about 2.9 million wet tons of sewage sludge, a byproduct of the sewage treatment process. Until this year New York's sludge was dumped at a site about 12 miles from shore. This year, the city switched to a disposal area about 106 miles away.

Threat From Untreated Wastes

"Ocean disposal of sewage sludge does not degrade the ocean," Mayor Koch said. Sludge, he said, contains "no floatable material" like the syringes and other medical waste that have washed up on New Jersey, New York and Connecticut beaches in recent weeks.

Fishermen from New Jersey and New England contend, however, that sludge dumping has sharply diminished catches and led to an outbreak of disease among shellfish. New York City officials say that is conjecture, arguing that no independent scientific studies have demonstrated that sludge dumping is responsible.

Many environmental advocates say they believe that sewage sludge is hazardous, though not because of the treated human waste that is its primary component. Rather, they say, the sludge contains untreated toxic wastes that come from industrial plants using the municipal sewage systems.

"This is such a complex problem, and you really can't say there are good guys on one side and bad guys on the other," said Representative Guy V. Molinari, a Republican of Staten Island and a ranking member of the Water Resources subcommittee.

'We'll Stop Sludge Dumping'

At the hearing today, Mr. Molinari said the dumping ban could backfire if instead of pouring the sludge into the sea, New York begins disposing of it at the Fresh Kills landfill on Staten Island. "Then it wouldn't be 100 miles away from New Jersey, it would be three or four miles," he said. "We already have four million gallons a day of leachate coming out of Fresh Kills every day and working its way to the beaches. Think how much more there will be if the sludge ends up in Fresh Kills instead."

Mr. Molinari added, however, that "Hughes is right that the only way to get New York City to stop dumping sludge is to hold their feet to the fire." But New Jersey lawmakers had no right to be sanctimonious, he said.

"I told Lautenberg, let's make a deal: We'll stop sludge dumping, which may or may not foul the beaches, if you'll stop the petrochemical companies in New Jersey from polluting the air. That's effecting our lives too and I don't see New Jersey rushing to stop it."

TESTIMONY OF DR. WILLIAM STASIUK

DIRECTOR, CENTER FOR ENVIRONMENTAL HEALTH
NEW YORK STATE DEPARTMENT OF HEALTH

TO THE COMMITTEE ON SMALL BUSINESSES SUBCOMMITTEE
ON REGULATIONS AND BUSINESS COPPORTUNITIES
ON INFECTIOUS WASTE

August 9, 1988

I am William Stasiuk, Director of the Center for Environmental Health, New York State Department of Health, and am submitting testimony on behalf of the Commissioner of Health, Dr. David Axelrod. New York State appreciates the opportunity to testify today on the issue of treatment and disposal of infectious waste.

The events of the summer of 1988, involving the closing of beaches from New Jersey to New England due to an influx of medical waste washing ashore, have again turned the spotlight on the special problems associated with safe and effective disposal of medical waste.

New York State recently compiled a report which demonstrates clearly that infectious wastes, as defined by law, do not constitute a large percentage of the waste generated by medical facilities in New York State. Approximately one-fifth of the waste generated by the industry meets the infectious waste definition.

Even more strikingly, the report demonstrates that infectious waste comprises an almost insignificant fraction of New York State's overall solid waste stream: less than one-half of one percent. Nevertheless, it has the potential to create significant social and economic disruption when improperly handled. As a matter of public policy, the state is not prepared to accept a treatment and disposal system which results in the closing of beaches on Long Island, Staten Island and elsewhere during the hottest days of the summer.

A 1987 amendment to the Public Health Law required that the State Health Department prepare and adopt a Statewide Infectious Waste Disposal and

Treatment Plan in consultation with the State Department of Environmental Conservation and representatives of affected health care facilities. A plan was prepared in response to the mandate and summarized infectious waste generation and management practices. established a hierarchy of treatment and disposal options for health care facilities and recommended reimbursement policies to meet the operating and capital costs of treatment and disposal.

As the plan summarizes, New York State hospitals, residential health care facilities, diagnostic and treatment centers, and clinical laboratories generate approximately 900 tons per week of infectious waste. Over 91 percent of this waste is generated by hospitals. On-site treatment most frequently consists of incineration or autoclaving. Incineration at the facility generating the waste is the common practice in hospitals, less common in nursing homes, and is rarely used in diagnostic and treatment centers and clinical laboratories.

Approximately 50 percent of the total infectious waste generated is treated on-site (920,000 pounds/week). Transportation of infectious waste from the generating facility to another location for treatment and disposal shows regional trends in New York State. Of the 1.3 million pounds per week generated in the Long Island, New York City and lower Hudson Valley Regions, approximately 64 percent (876,000 lbs/wk) is transported off-site for treatment and disposal. This is compared with 11 percent (51,600 lbs/wk) for upstate New York facilities, which generate 506,000 pounds per week.

Off-site transportation of infectious waste for treatment and disposal occurs more commonly in the downstate area. Approximately 190 tons per week of infectious waste is hauled out-of-state, usually to South Carolina. Pennsylvania or New Jersey.

A variety of factors have combined to give health facilities great difficulty in disposing of infectious waste in recent years. Among these factors are limited nearby disposal capacity, community concern about air pollution, municipal solid waste workers' concern about disease transmission and highly publicized incidents involving improper disposal of medical waste. CDC's recent recommendation of universal precautions for management of certain body fluids from all patients have heightened concern among sanitation workers who handle and transport medical waste on a routine basis. Such workers receive minimal, if any training, on risks of infection and proper handling of infectious waste. The result is fear of all medical wastes, often leading to a blanket refusal to handle medical wastes. All of these factors have caused the cost of medical waste removal to increase significantly, impacting the overall costs of health care.

While there are several technologies for treatment and disposal of infectious waste, incineration is the preferred method for most categories of waste. New York State's plan relies heavily on incineration as the best solution to the problems of infectious waste. However, the plan offers facilities flexibility in choosing treatment and disposal options which meet individual needs and circumstances, and it provides guidelines for reimbursement of the costs incurred.

The plan recommends a hierarchy of six options to be considered by the industry and health facilities in order to be eligible for reimbursement of costs. In order of priority these are:

1. Incineration at municipal solid waste incinerators (other than refuse-derived fuel plants).

2. Construction of regional infectious waste incinerators.

3. Regional utilization of an on-site hospital incinerator.

4. Incineration on-site.

5. Other treatment methods.

6. Landfilling.

It should be noted that the relative order of these options may shift when new technologies are developed that prove to be effective and cost-efficient.

There are significant barriers which must be overcome before the full range of options will be realistically available to a facility so that it may choose the best one for its needs and circumstances. While the preferred and generally most cost-effective option is utilization of municipal solid waste incinerators, most of those facilities now operating do not accept infectious wastes. There is no technical impediment to using this option, but worker and neighborhood concerns with the handling, transport, storage and burning of infectious waste must be addressed. These can only be overcome with improved education and training for sanitation workers and better control of the transportation of infectious waste. Recent New York State legislation provides an appropriate regulatory framework to oversee these activities.

Regulations have been promulgated by the Department of Health and the Department of Environmental Conservation that address handling, storage, transportation, treatment and disposal of infectious waste. Of particular note is the requirement of a manifest system for health care facilities and clinical laboratories that will provide a paper trail to facilitate the tracking of infectious waste from its origin to its ultimate disposal. Disposal, however, remains the key issue.

Siting any incinerator is difficult. Some hospitals that have simply proposed to upgrade an existing incinerator have faced significant neighborhood opposition. Furthermore, while about half of hospital-generated infectious waste is now incinerated on-site, the State is adopting more stringent regulations for air contaminant emissions from incinerators. As a result, no existing hospital incinerator will meet the requirements scheduled to take effect January 1, 1992 without extensive retrofitting.

The 1992 date for new air pollution standards for incinerators represents a deadline which must be addressed now, if New York State and its health care industry are to meet legitimate concerns about air quality and still have an acceptable treatment and disposal system for infectious waste. As a matter of public policy, the citizens of New York do not wish to retreat on air quality standards.

Special notice must also be taken of the extreme regional variations in infectious waste handling capacity in New York State. On the basis of a statewide average, about half of all infectious waste is now incinerated on-site. But outside of the New York City area, some 90% of that waste is incinerated on-site, while in the metropolitan area (New York City, Long Island and the lower Hudson Valley) only about one-third of this waste is handled on-site.

Metropolitan area hospitals also ship more infectious waste out-of-state than they handle on-site or elsewhere in New York. These hospitals generate by far the greatest bulk of such waste, with New York City and Long Island facilities alone accounting for 63% of all hospital infectious waste in the state.

In response to the specific issue of dealing with medical debris washing ashore on Long Island and New York City beaches, New York State has initiated two courses of action. First, the Departments of Health, Environmental Conservation and Parks and Recreation, have developed a memorandum of understanding to coordinate our efforts in dealing with such incidents. Second, the State and local health departments have agreed to uniform criteria for closing and opening bathing beaches.

In New York State, generators or haulers of less than 100 kilograms of infectious waste per month are exempted from many of the infectious waste regulations. Physician, dental, and veterinarian offices plus many small clinical facilities or laboratories are not likely to generate large quantities of infectious waste. However, only a small amount of infectious waste can cause an unsightly and highly undesireable problem when inappropriately disposed. Governor Cuomo will propose legislation which will eliminate the small generator exemption and require that all infectious wastes be subject to the manifest system.

HEARING ON INFECTIOUS WASTES

BY

REGULATION AND BUSINESS OPPORTUNITY SUBCOMMITTEE

OF

HOUSE SMALL BUSINESS COMMITTEE

TESTIMONY OF:

BRENDAN SEXTON, COMMISSIONER

NEW YORK CITY, DEPARTMENT OF SANITATION

AUGUST 9, 1988
ROOM 2359 A
RAYBURN HOUSE
OFFICE BUILDING

Thank you Congressman Wyden for inviting me here today to testify. As Commissioner of the New York City Department of Sanitation I am extremely appreciative of the interest Congress is taking in the issue of medical and infectious waste disposal. My staff and I have been grappling with this problem for a number of years. In fact, back in 1985, New York City, enacted the first measure to regulate the disposal of potentially infectious waste (Local Law 57).

Briefly, that law required licensed health care providers to separate potentially infectious waste from medical waste before it is sent out for disposal. Potentially infectious waste includes pathological waste, laboratory waste, serums and vaccines, needles and other sharp items which can cause puncture, and surgical waste emanating from a patient with communicable disease. Non-infectious medical waste includes office paper, cafeteria waste, and discarded medical material that presents no danger of infection to persons handling it.

The non-infectious medical waste from hospitals and nursing homes is collected by the Department of Sanitation and taken to a Department incinerator for disposal. This is designed to prevent the possibility of infectious waste which we find all too often, unfortunately, mixed in with medical waste, from entering the bulk of the waste disposal system. It enables us to randomly inspect waste arriving at the incinerator for infectious waste and if such material is found to locate and penalize the persons responsible.

Potentially infectious waste is handled by health care generators in two different ways: A large fraction of the material is incinerated on the premises in special pathological waste incinerators or rendered non-infectious through steam auto-claving. Materials not disposed of on-site are consigned to state licensed private carters who take waste to waste disposal facilities in New York State or elsewhere. The Department of Sanitation and the New York State Department of Environmental Conservation both randomly inspect the loads of waste placed out for pick-up by the carters and the loads carters carry.

Clinical laboratories and physician's generate comparable wastes. However, these facilities are serviced only by private carters. The infectious portion of the waste they generate is barred, by law, from entering the Department waste disposal system. The non-infectious portion of their waste is only permitted at the Department's incinerators. But the Department routinely monitors what is discarded from these facilities. As a result, on only a few occasions, when Sanitation workers suspected improper disposal of infectious waste material at our landfills, have investigations sustained the charges of violation of local law.

The Department has a specialized unit of thirteen investigators and six attorneys to respond to complaints, monitor compliance with the law; and, also to litigate cases of violations before the City's adjudicatory body, the Environmental Control Board. Since enactment of the law, approximately 100 cases a year are prosecuted by the Department of Sanitation.

When medical debris and other waste began washing up on the shores of the region, the Environmental Enforcement Unit intensified its efforts to track down the source of this material. The Mayor also deployed staff of the City's Departments of Parks, Police, Health and Environmental Protection to work on cleaning up the beaches. State and federal officials, have also devoted significant resources to this effort. After a careful review of material which has washed up on regional beaches we have concluded that these materials do not have a single source. For example, traceable items have been discovered including some pill bottles. Investigation proved that one pill bottle was left on a beach, one was thrown out 18 months ago, another fell out of a boat, and a fourth was accidently dropped from a pier. This illustrates the likelihood of many sources of the waste being found. However, much of the information we have gained leads us to believe that most of the waste has been illegally disposed of into the water.

We are, of course, continuing our investigations, and at the same time preparing amendments to local law 57 to expand its scope by giving the Department of Sanitation authority to regulate the private carters and the safe disposal by private individuals, such as diabetics who must dispose of infectious wastes. Our proposal would make it explicitly illegal for any health care provider to arrange for the transportation of infectious waste by an unlicensed hauler.

Without minimum standards material will flow from areas of appropriate but expensive disposal to areas where cheap disposal is possible. In addition, fear and uncertainty will remain unabated no matter what handling and disposal procedures are locally adopted.

- Second, the cost of proper handling and disposal is very high, especially when disposal must be performed at a distant facility. For example, our recent estimates indicate that it costs generators $1.00 per pound to transport and dispose of infectious material. When costs are so high the incentive is great to illegally dump the material.

Therefore, I was very pleased to see that the Senate passed a bill which calls for EPA to put in place a uniform manifest system tracking waste from its generation source, through its transportation to its final disposal destination.

As you may know, New York and New Jersey have recently promulgated emergency regulations to require a similar manifest system for waste generated within the two states. However, transporters of small amounts of infectious waste (100 kilograms or less) are exempted from New York State's regulations. This is a mistake. If, in fact, we need to be concerned about proper handling and disposal of these wastes, doctors, clinics, laboratories and others who generate small amounts should not be permitted to escape regulation by contracting with unpermitted transporters. All infectious waste needs to be properly handled and disposed, and therefore regulated.

As a long-term solution, the federal government should seriously consider methods of encouraging or requiring hospitals and health care facilities of a reasonable size to install on-premises, state-of-the-art incinerators, and to provide an exemption for these facilities from the air pollution off set requirements for new incinerators. These facilities should be required to take infectious waste from ~~nearby generators too~~ small to install their own incinerators. A scheme such as this could prove economically beneficial for both the hospitals with the incinerators and the neighboring generators. The hospitals with the incinerators would receive payment for disposal of waste taken from neighboring health care providers, and the neighboring generators in turn, would have to pay less than if they had to transport the waste to a distant location.

The savings to the public in general, in terms of protection from water-borne debris, potential disease, and fear would be enormous.

The total volume of infectious waste generated each week in New York State and New York City is miniscule when considering the air pollution offsets that would be required. Therefore, the effects on air-quality should be de-minimus. New York State currently generates 1.8 million pounds of infectious waste per week. Included in that amount is the 852,000 pounds generated in

275,000 pounds are disposed on the premises where it is generated, 225,000 pounds are sent out-of-state, and 380,000 pounds are sent to other facilities within the state.

I hope you will seriously consider these two proposals.

I look forward to working with members of Congress and the federal administration to find solutions to the problems of disposal of infectious waste.

Thank you for this opportunity to testify.

NRDC

Natural Resources
Defense Council

1350 New York Ave., N.W.
Washington, DC 20005
202 783-7800

Testimony of the
Natural Resources Defense Council
before the
House Committee on Small Business
Subcommittee on Regulation and Business Opportunities

Prepared by:

Jacqueline M. Warren
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August 9, 1988

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The Natural Resources Defense Council (NRDC) is a national non-profit environmental organization with more than 80,000 members and contributors, and a professional staff of attorneys and scientists dedicated to protecting public health and the natural environment. For the past ten years, NRDC has been actively involved in the implementation of the federal hazardous waste management program under the Resource Conservation and Recovery Act (RCRA). Most recently, we have focused on solid waste management as well, especially the impacts of solid waste incineration and landfilling. Accordingly, NRDC has been greatly concerned about the problems which have become so evident this summer regarding the management and disposal of medical waste.

This year, we are facing on a larger scale than in 1987 or any previous year the ugly realities attributable to major shortcomings in the management of medical waste. Indeed, along the East coast from Delaware to Massachusetts, the public is reacting with anger, disgust, and fear to the almost daily scenes of medical waste washing up on the areas' beaches.

Beach contamination is only part of a much larger problem. Although less visible, equally serious concerns are raised by the three principal disposal practices for medical waste: incineration, landfilling, and sewage disposal. These practices are not now governed by comprehensive and environmentally protective federal or state requirements. A patchwork of laws and regulations exists at the state and local levels, but there is no federal program to ensure the proper packaging, treatment, transportation, disposal, or tracking of medical waste. Such a program is already in place providing cradle-to-grave management of wastes deemed to be hazardous under Subtitle C of RCRA. However, this program does not now apply to medical wastes, although NRDC believes that it should. We therefore appreciate this opportunity to present our views on how to improve the management of medical wastes to prevent future health or environmental harm.

1. The nature of the medical waste management problem

Existing federal and state regulations do not adequately address the risks and problems associated with the exposure to medical wastes, which include infectious as well as other wastes produced by hospitals, clinics, doctors' and dentists' offices, and a variety of other sources. Nor do existing regulations establish clearly defined federal and state roles for regulating medical wastes. NRDC believes that a federal framework is needed now to establish minimum requirements nationwide and to rationalize the existing patchwork of requirements applicable to this interstate problem. To illustrate the disparities, it should be noted that only twenty-four states currently regulate medical waste incineration at all and only five states now require incineration of infectious wastes.[1]

There are many risks and problems associated with exposure to medical wastes. The obvious and immediate concern is public exposure to medical wastes washing up on beaches, dumped on streets, or otherwise illegally disposed. Wastes washing up on the beaches expose the public to risks from puncture, possible contraction of infectious disease from contaminated waste, additional symptoms, such as rashes, from affected bodies of water, and disease carried by animals attracted to the wastes. The types of wastes present include laboratory rats and human stomach linings, in addition to sharps, syringes, blood vials, and plastic debris. Finally, the direct threats posed by, and the aesthetically offensive nature of the wastes severely threaten the affected areas' economies. However, treatment and disposal of medical wastes through incineration, autoclaving, landfilling, and public sewer systems pose other types of equally if not more serious long-term risks.

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[1] The Council of State Governments, "State infectious Waste Regulatory Programs," 1988, at 10 and 15.

a. Incineration

The most critical problem raised by medical waste incineration is the absence of federal regulations establishing such basic parameters as air emissions standards, operating temperatures and residence time, operator training and monitoring specifications, and ash disposal requirements. The absence of regulations is significant in light of the fact that hospitals are estimated to incinerate 70% of their infectious wastes. The need for such requirements is becoming more important, as the risks posed by incinerator emissions and ash are increasingly being recognized. For example, existing incinerators, and particularly on-site hospital incinerators, frequently are located in urban areas, are operated by poorly trained staff, lack pollution control equipment, and have low stack heights. These and additional factors tend to compound the dangers from incineration.

Pollution controls are needed to reduce the levels of dioxins and furans, acid gases, heavy metals, and particulate matter emitted by medical waste incinerators. The need to do more to control these emissions is illustrated by the fact that the incineration of medical waste has been shown to produce dioxin and furan levels that are one to two orders of magnitude higher than those produced by municipal solid waste incineration.[2] In part, the emissions problems result from the high composition of plastics, which account for 30% of the medical waste stream. High emissions levels also reflect the poor operating conditions present at many hospital incinerators. Poor practices include "batch-burning," which increases the frequency of start-up and shut-down periods, uneven and low burning temperatures, and the assignment of untrained or poorly trained workers to operate the incinerators. Adequate monitoring systems for emissions levels and temperature also appear to be non-existent.

Incinerator temperatures during operation not only affect emissions levels, but are critical to the destruction of the infectious material itself. Where operating temperatures are below 1600 degrees F., viable infectious organisms may be released into the surrounding environment.[3]

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[2] "Hospital Waste Combustion Study, Data Gathering Phase, Final Draft Report," prepared by Radian Corporation, Research Triangle Park, NC., for U.S. EPA, Office of Air Quality Planning and Standards, EPA Contract No. 68-02-4330, October, 1987, at 3-25, 3-26.

For the reasons stated above, NRDC believes that all medical waste incinerators, existing and those under consideration, on-site and regional, should be required to have pollution control equipment. If older, on-site facilities are unable to comply, they should be retrofitted or closed. In addition, requirements should be developed to ensure the existence and adequacy of operator training programs, and the use of monitoring systems to maintain optional operating conditions and emissions controls.

Finally, municipal incinerator ash and residues from medical waste incinerators should be subjected to the same requirements, as recommended in A Solid Waste Blueprint For New York State.[4] At a minimum, ash disposal requirements should include testing procedures, separate handling for bottom and fly ash, ash monofills with double composite liners, leachate collection systems, ground water monitoring systems, and handling requirements that protect against spillage, leakage, and ash dispersal.

b. Autoclaving

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[3] Ibid., at 3-28.

[4] Natural Resources Defense Council, et al., A Solid Waste Blueprint For New York State, March 1988, pp. 79-92. A copy is attached for the record.

Autoclaving or steam sterilization is applied to approximately 15% of the medical waste stream. Yet, the process remains unproven as an effective means of treating medical waste. Available information suggests that operating conditions and practices vary widely among facilities. For instance, although effective destruction of certain bacteria require exposure periods of 90 minutes, some facilities apply only a 20 to 30 minute time period.[5] Moreover, only four states specifically regulate the time, temperature, and pressure conditions for autoclaving, although such conditions are key to the sterilization of infectious materials.[6] Finally, wastes that are sterilized require additional treatment or disposal because there is no volume reduction.

EPA should be directed to develop testing procedures to demonstrate the effectiveness of autoclaving and to determine proper operating conditions. Regulations should at a minimum specify time, temperature, and pressure requirements. NRDC also recommends that the practice, in general, be limited until such regulations and testing procedures are developed.

c. Landfilling

The inadequately protective conditions present at Subtitle D (municipal solid waste) landfills across the nation rule these facilities out for the disposal of medical waste for the foreseeable future. The vast majority of such landfills are unlined, lack leachate collection systems, and do not monitor for groundwater contamination. These facts are particularly disturbing in light of the fact that 12 states currently allow untreated medical wastes to be landfilled,[7] and that the presence of blood increases the leaching of toxic substances from the facility. NRDC therefore recommends that Congress prohibit the disposal of medical waste at Subtitle D landfills.

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[5] William Rutala, et al., "Decontamination of Laboratory Microbiological Waste by Steam Sterilization," Applied Microbiology, 43(6) : 1311-1316, June 1982.

[6] Op. cit., Council of State Governments, at 15.

d. Sewage Disposal

Astonishingly, the practice of pouring medical wastes down sewer drains remains one of the "recommended" methods of disposal. In theory, facilities discharge their wastes in the expectation that the waste will be dealt with at municipal and county sewage treatment plants. In reality, medical facilities following this recommendation are releasing their wastes without assurance that treatment will in fact take place, and are contributing to the nation's water pollution problems in several respects. First, many municipal sewer systems continue to discharge millions of gallons of raw sewage. The discharge of raw sewage is a particular problem for those communities with antiquated systems that overload with storm drain runoff. High bacterial counts from sewage wastes are also responsible for recent beach closings.

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[7] Id.

Second, the nation's sewage treatment plants have not demonstrated sufficient implementation of secondary and tertiary treatment systems. Although 87% of the nation's publicly owned sewage treatment plants have met the July 1, 1988 EPA deadline for compliance with the Clean Water Act's requirement for secondary treatment, more than 400 plants have not. The non-complying systems include some of the largest municipal systems, such as Boston and New York City. The absence of tertiary treatment systems is even more widespread.

Finally, medical wastes contribute to the contamination of sewage sludge. Sewage treatment technologies are not suited for the treatment of the chemical, radioactive, and metallic agents contained in some medical wastes. The problem is particularly critical because of the difficulty of disposing of contaminated sludge. In NRDC's view, the nation's sewage treatment systems cannot and should not handle medical waste. The practice is unacceptable in principle and should be prohibited.

2. The adequacy of existing state and federal regulations governing infectious wastes

There are critical gaps in the states' medical waste management programs at every juncture. Nevertheless, EPA continues to maintain that the problem is "regional", and that medical wastes are better managed at the state level as part of municipal solid waste programs rather than as hazardous wastes.

Hence, an effective national medical waste management and regulatory system does not exist.[8]

By leaving the management and disposal of medical wastes to state and local regulatory agencies, the nation is placing itself at a serious risk. Indeed, eleven states and the District of Columbia do not regulate "infectious wastes" at all.[9] In the remaining states, the current system is simply not working very well.

New York and Pennsylvania provide excellent lessons on the inadequacies of state and local medical waste management. New York has been unable either to enforce existing regulations or to implement strengthened medical waste regulations. For example, since 1985, New York City has prohibited "potentially infectious waste[s]" from being disposed of within the city's sanitation and landfill system.[10] Despite the regulation, as recently reported in the New York Post, "more than half of the city's 83 private and public municipal hospitals have illegally mixed infectious waste -- including syringes, blood vials, and scalpels -- with their general waste...."[11] Medical wastes have turned up at city facilities, such as the Greenpoint municipal incinerator in Brooklyn, and state and local officials have theorized that at least some of the wastes that are washing up on the areas' beaches originated from the city's barges on route to the Freshkills landfill site on Staten Island.[12]

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[8] "Legislation Reflecting Public Outcry Would Force EPA Controls on Medical Waste," Inside EPA, July 29, 1988, at 5.

[9] Op. cit., Council of State Governments, at 5.

[10] Title 16 of the Administrative Code of the City of New York §16-120.1.

[11] "Hospital Waste Outrage," New York Post, August 2, 1988, at 4., "Medical Waste -- New Rules," New York Post, August 3, 1988, at 4, and "Mystery of Fouled Beaches: Clues, but No 'Smoking Gun,'" The New York Times, July 25, 1988 at A1.

Last week, New York State's Department of Environmental Conservation announced the issuance of emergency regulations to track and regulate medical waste pursuant to legislation enacted more than a year before the current crisis. While this is a step in the right direction, it remains to be seen whether the new rules will keep the beaches clean next summer.

The problematic nature of state efforts to regulate medical waste are illustrated by recent developments in Pennsylvania. Effective July 13, 1988, the state has enacted a moratorium on the licensing of new commercial medical waste incinerators.[13] Under the moratorium, the Pennsylvania Department of Environmental Resources will not issue permits for the construction and operation of new medical waste incinerators and disposal facilities until the state develops an "Infectious and Chemotherapeutical Waste Plan." At the same time, tightened emissions requirements and other pressures are pushing generators of medical waste towards off-site disposal.

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[12] Id.

[13] Act 93 - P.L. 525 of the State of Pennsylvania, July 13, 1988.

The enactment of the Pennsylvania moratorium provides a telling example of the type of inconsistent actions that states are taking in the absence of a federal regulatory system. Legitimate concerns over the potential health and environmental impacts of incineration have supported the state's movement in one direction, while other concerns suggest that off-site incineration may be the most appropriate method for treating medical wastes. Enacting stringent emissions requirements, which move generators away from on-site incineration, while simultaneously erecting obstacles to off-site incineration does not comprise a rational medical waste program at the state level. As stated above, NRDC believes that a federal framework of uniform minimum requirements is urgently needed to guide efforts at the state level and avoid the contradictory measures that are occurring in states such as Pennsylvania.

To date, the federal role in medical waste management has been equivocal. In 1980, EPA deferred listing "infectious wastes" as part of the federal hazardous waste program until identification of treatment methods to exempt such wastes from regulation could be completed. At the time, EPA expected to be able to list infectious waste as hazardous by the end of 1980.[14] EPA never listed infectious waste as hazardous, however.

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[14] Hazardous Waste Management System, Identification and Listing of Hazardous Waste, 45 Fed. Reg. 33084, 33087 (May 19, 1980).

Instead, the Agency developed a Guide to Infectious Waste Management, completed in 1986.[15]

EPA's Guide is a poor substitute for an effective national policy. The Guide admits that it is intended to serve only as a "reference" document, and even then, only addresses the problems posed by infectious characteristics. Although the Guide contains helpful advice, and legislation is pending to require EPA to enact its recommendation as regulations, the Guide is not enforceable; it does not have the force of law.

NRDC sees certain substantive problems with the Guide even if it were incorporated into regulations. First, EPA's definition of "infectious waste" is too narrow because it applies to only a limited segment of the medical waste stream.[16] Infectious wastes should be included as a subset of a broader category called "medical wastes."

The category of "medical wastes" should include those wastes which pose a hazard to health or the environment which are generated from any medical facility or facility that performs a related function. The need to expand the regulatory structure to cover all medical wastes is necessitated by the fact that medical wastes other than those defined in the specific category called "infectious wastes" may present similar and/or their own sets of risks and threats to public health and the environment. For example, in EPA's Guide, wastes such as those from surgery and autopsies, contaminated laboratory wastes, dialysis unit wastes, and "discarded equipment and parts that may be contaminated with infectious agents" are listed as only "optional" for designation as infectious wastes and therefore for special handling and treatment.[17] The definition of medical wastes should also account for those agents which exhibit acutely toxic or radioactive characteristics.

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[15] EPA Guide For Infectious Waste Management, U.S. Environmental Protection Agency, EPA/530-SW-86-014 (Washington, D.C. 1986).

[16] EPA defines infectious waste as "waste capable of causing infectious disease." 53 Fed. Reg. 20140, 20142 (June 2, 1988). Moreover, according to EPA, "for a waste to be infectious, it must contain pathogens of sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in infectious disease." 53 Fed. Reg. at 20142.

Even as a reference document, the Guide fails to make recommendations on the best available methods and technologies for the management of medical waste. Instead, it states that "management options for an individual facility should be selected on the basis of what is most appropriate for that particular facility. Factors such as location, size, and budget should be taken into consideration."[18] Such an approach leaves too much latitude to those making the decision on the individual facility without some limits on the exercise of discretion in the form of best available technology or design and operating specifications. Without such limits, the least cost alternative is likely to be selected, in some cases, regardless of the potential health and environmental impacts.

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[17] Ibid., at 2-5, 2-6.

[18] Ibid., at 3-2.

3. Medical waste should be listed as hazardous under Subtitle C of RCRA

In light of the numerous deficiencies outlined above in the current approach to managing medical wastes at the state and local levels, NRDC recommends that medical wastes be listed as hazardous under Subtitle C of RCRA. By taking such a step, EPA would incorporate medical waste into the existing cradle-to-grave management system in place for hazardous wastes, including the requirements for tracking, carefully controlled disposal, and stringent penalties for violations. Rather than constructing a separate regulatory program for wastes which are in fact hazardous, NRDC believes that the most expeditious way to control the management of medical wastes would be to place them in an already existing regulatory system.

NRDC further recommends that two concurrent tracking systems be established for medical wastes. A new system should be created to identify manufacturers, distributors, commercial purchasers of medical supplies, and medical facilities, and to place identifying marks on medical products. The system would resemble that which already exists for food and other over-the-counter items, such as aspirin. A coded identification should be imprinted on medical products, and be sufficiently resistant to exposure to sea water and other elements to prevent obscuring the product's identity. In concert with the Food and Drug Administration and the Consumer Product Safety Commission, EPA should be directed to explore existing authority under TSCA §6, the Federal Food, Drug, and Cosmetic Act, and the Consumer Product Safety Act to support such a product marking program.

The second tracking system should be the manifest system established under RCRA Subtitle C to track hazardous waste from the point of generation to the point of disposal. The manifest system should apply to all medical waste, and should include waste treated at on-site incinerators. Additionally, those facilities with on-site incinerators should be required to account for the disposal of their ash. Only then can we ensure that ash disposal requirements are followed and medical wastes are not co-disposed with incinerator ash and other combustion residues. NRDC recommends that ash be disposed separately from other wastes in order to reduce the leaching of toxic metals present in incinerator ash.

NRDC supports the measure that recently passed the Senate in S. 2680. However, we view it as only a first step toward implementing an effective manifest tracking system for medical waste. In our view, the system should reach beyond the three states included in the Senate's demonstration tracking program because the problem extends beyond those states.

Finally, the inclusion of medical waste under Subtitle C would provide an effective enforcement system that will deter illegal disposal because it makes violations a felony and imposes stringent civil and criminal penalties for violations. Existing civil penalties at the state level are clearly inadequate. In

New York, for example, illegal dumping of infectious wastes is only a misdemeanor at the present time. More than 50 hospitals in New York City have been fined a total of $481,000 for illegal disposal since 1985. Major hospitals such as New York Hospital and Kings County Hospital have paid only $93,000 for 17 violations over the same period.[19] This problem could be remedied by the imposition of RCRA Subtitle C penalties for violation of handling and disposal requirements. These penalties include civil penalties of $25,000 per day of violation and criminal penalties of $50,000 per day and two to five years in prison upon conviction for violations.[20]

4. Conclusion

This summer the environment appears to have reached and exceeded its carrying capacity threshold for absorbing the pollution created by late 20th century life. Each day the media report on polluted waterways and beaches, fish kills, red tides, brown tides, ozone depletion, global warming, drought, record surface ozone levels, forests dying, and other signals of a gravely taxed natural environment. The release of pollutants into the environment must be curbed, and changes made in the way waste has been handled in the past. Medical waste is only one aspect of this larger problem, but it is a particularly sensitive and potentially dangerous one. The federal government has an important role to play in moving us toward a solution which will protect both public health and the integrity of our waterways and beaches. To this end, NRDC urges the Subcommittee to recommend that EPA be directed to list medical waste as hazardous and to implement requirements as soon as possible to control the handling and disposal of these materials.

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[19] See attached article "Hospital Garbage Scandal" for a complete listing.

[20] 42 U.S.C. §6928(c),(d),(f).

NRDC

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August 11, 1988

Hon. Ron Wyden
Chairman
House Committee on Small Business
Subcommittee on Regulation and
Business Opportunities
R-363 Rayburn House Office Building
Washington, D.C. 20515

Dear Mr. Chairman,

At this time, we would like to submit additional comments to supplement our August 9, 1988 testimony on existing medical waste management practices. In their testimony, EPA mentioned the Agency's recent June 2, 1988 Federal Register notice requesting comment "on issues pertaining to infectious waste." We believe both the notice and NRDC's comments on these issues will be of interest to the members of the Subcommittee.

We thank you for the opportunity to testify before the Subcommittee, and to state our support for regulating medical waste under the nation's hazardous waste management system. Please feel free to contact us if we can be of any further assistance.

Sincerely,

Jacqueline M. Warren

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COMMENTS OF THE
NATURAL RESOURCES DEFENSE COUNCIL, INC.
ON
INFECTIOUS WASTE MANAGEMENT

(53 Fed. Reg. 20140
June 2, 1988)

EPA RCRA Docket (S-201) (WH-562)
401 M Street, SW,.
Washington, D.C. 20460

RCRA Docket #
F-88-1WMA-FFFFF

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August 1, 1988

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The Natural Resources Defense Council (NRDC) has paid close attention to the concerns over adverse impacts on human health and the environment associated with the management and disposal of medical waste. In 1988, we are again facing the ugly realities attributable to the shortcomings in the management of medical waste. Indeed, the Eastern coast from Delaware to Massachusetts is reacting with anger, disgust, and fear to the almost daily scenes of medical waste washing up on the areas' beaches.

Beach contamination is only part of a larger problem. Although less visible, equally serious concerns exist over the three principal disposal practices for medical waste, incineration, landfilling, and sewage disposal. These practices are not now governed by comprehensive and environmentally protective regulations. Finally, and most significantly, there is no federal government involvement to ensure the proper packaging, treatment, transportation, disposal, or tracking of medical waste. NRDC believes that EPA has and must use its authority to establish a national system for the management of medical waste.

The following comments reflect NRDC's positions and recommendations on some of the issues on which comments were requested in the June 2, 1988 Federal Register notice:

A. Definition of Infectious Waste

Q1. Is EPA's current definition of infectious waste appropriate? If not, how should infectious waste be defined?

EPA's current definition of "infectious waste" is too narrow because it applies to only a limited segment of the medical waste stream. Infectious wastes should be included as a subset of a broader category called "medical wastes."

EPA should include in the category of "medical wastes" those wastes which pose a hazard to health or the environment which are generated from any medical facility or facility that performs a related function. The need to expand the regulatory structure to cover all medical wastes is necessitated by the fact that medical wastes other than those defined in the specific category called "infectious wastes" may present similar and/or their own sets of risks and threats to public health and the environment. For example, in EPA's 1986 Guide for Infectious Waste Management, wastes such as those from surgery and autopsies, contaminated laboratory wastes, dialysis unit wastes, and "discarded equipment and parts that may be contaminated with infectious agents" are listed as only "optional" for designation as infectious wastes and therefore for special handling and treatment.[1]

NRDC further believes that this expanded category of medical wastes should be listed as a hazardous waste. In enacting the Resource Conservation and Recovery Act ("RCRA") in 1976, Congress defined hazardous waste, in part, as infectious wastes which may, "(A) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed."[2] Medical wastes satisfy all of the above conditions. In addition to the risks of infection and physical injury by discarded sharps, such waste as pharmaceutical, cytotoxic, and anti-neoplastic agents, exhibit acutely toxic characteristics. Other medical wastes are radioactive. EPA must account for these additional types of medical wastes. Finally, the inclusion of medical wastes into the hazardous waste system would allow EPA to utilize the management and enforcement system, with criminal penalties, that is already in place under RCRA Subtitle C.

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[1] EPA Guide for Infectious Waste Management, U.S. Environmental Protection Agency, EPA/530-SW-86-014 (Washington, D.C. 1986), pp. 2-5, 2-6.

Q2. Should this definition be based on waste characteristic, waste type, waste source, or a combination of these factors?

The definition should based on characteristics and type of waste. Source could be considered in combination with these factors, but not independently. To consider source on its own, EPA would have to anticipate and list every point of origin for medical wastes, a virtually impossible task. The definition must also account for all chemical, toxic, and radioactive wastes that are part of the medical waste stream.

Q3. Are there different categories of infectious waste that warrant differing degrees of control?

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[2] 42 U.S.C. § 6903(5).

The threatening nature of medical wastes and the inability to readily identify and classify the different types of dangers presented argue against separating medical wastes for differing degrees of control. In practical terms, workers are likely to resist separating wastes out of fears of injury and contraction of infectious, and even deadly, diseases. EPA should develop regulations that are based on the most conservative estimates for the most dangerous wastes, and the regulations should apply to all medical wastes.[3]

B. Nature of the Problem Posed by Infectious Wastes

Q: What are the risks and problems posed by exposure to infectious wastes? To what extent is the mismanagement of these wastes a problem?

There are many risks and problems associated with the exposure to medical wastes. The obvious and immediate concern is public exposure to medical wastes washing up on beaches, dumped on streets, or otherwise illegally disposed. Treatment and disposal through incineration, autoclaving, landfilling, and public sewer systems pose other types of long-term risks.

Wastes washing up on the beaches expose the public to risks from puncture, possible contraction of infectious disease from contaminated waste, additional symptoms, such as rashes, from

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3. The one possible exception to this might apply to certain non-combustible wastes. Concerns over controlling emissions levels and the need for optimal combustion conditions may necessitate the removal of some wastes, such as large objects, metal instruments, explosive materials, and toxic chemicals requiring separate carefully controlled treatment and disposal.

affected bodies of water, and disease carried by animals attracted to the wastes. The types of wastes present include laboratory rats and human stomach linings, in addition to sharps, syringes, blood vials, and plastic debris. Finally, the direct threats posed by, and the aesthetically offensive nature of the wastes severely threaten the affected areas' economies.

Incineration:

The most critical problem surrounding medical waste incinerators is the absence of binding federal regulations establishing such basic parameters as air pollution emissions standards, operating temperatures and residence times, operator training and monitoring specifications, and ash disposal requirements. The absence of regulations is significant in light of the fact that hospitals are estimated to incinerate 70% of their infectious wastes. The need for such requirements is increasingly important, as the risks from incinerators are recognized. Existing incinerators, and particularly on-site hospital incinerators, frequently are located in urban areas, lack pollution control equipment, and have low stack heights. These and additional factors tend to compound the dangers from incineration.

Pollution emissions controls are needed to reduce the levels of dioxins and furans, acid gases, heavy metals, and particulate matter. The need to do more to control these emissions is illustrated by the fact that the incineration of medical waste has been shown to produce dioxin and furan levels that are one to two orders of magnitude higher than those of municipal solid waste incineration.[4] In part, the emissions problems result from the high composition of plastics in the medical waste stream. Plastics account for 30% of the medical waste stream. High emissions levels also reflect the poor operating conditions present at many hospital incinerators. Poor practices include "batch-burning," which increases the frequency of start-up and shut-down periods, uneven and low burning temperatures, and the assignment of untrained or poorly trained workers to operate the incinerator. Adequate monitoring systems for emissions levels and temperature appear to be non-existent.

Incinerator temperatures during operation not only affect emissions levels, but are critical to the destruction of the infectious material itself. Where operating temperatures are below 1600 degrees F., viable organisms may be released into the surrounding environment.[5]

All medical waste incinerators, existing and those under consideration, on-site and regional, require pollution control equipment, and should be subjected to all regulations that are developed. The Radian Hospital Waste Combustion Study suggests

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4. "Hospital Waste Combustion Study, Data Gathering Phase, Final Draft Report," prepared by Radian Corporation, Research Triangle Park, NC., for U.S. EPA, Office of Air Quality Planning and Standards, EPA Contract No. 68-02-4330, October, 1987, at 3-25, 3-26.

5. Op. cit., EPA Guide for Infectious Waste Management, at 4-9 and "Hospital Waste Combustion Study, Data Gathering Phase, Final Draft Report," at 3-28.

that only rotary kiln incinerators require air pollution control equipment, noting that "... most controlled air incinerators can meet current State and local particulate matter emission limits without add-on gas cleaning devices."[6] Such conclusions are questionable, since federal incinerator emissions standards do not exist, and state and local particulate standards differ widely.

NRDC believes that older, on-site facilities should either be retrofitted or closed. Regulations should also stipulate that medical waste must be incinerated separately from municipal solid waste, and preferably at independent facilities. Finally, incinerator ash and residues from medical waste incinerators should be subjected to the same municipal incinerator ash requirements, as recommended in A Solid Waste Blueprint For New York State.[7] At a minimum, ash disposal requirements should include testing procedures, separate handling for bottom and fly ash, ash monofills with double composite liners, leachate collection systems, ground water monitoring systems, and handling requirements that protect against spillage, leakage, and ash dispersal.

Federal regulations regarding medical waste incineration are sorely needed. Existing state regulations appear to impose a patchwork of different and sometimes inconsistent requirements.

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[6] Ibid., at 2-6, 2-10.

[7] Natural Resources Defense Council, et al., A Solid Waste Blueprint For New York State, March 1988, pp. 79-92.

Only twenty-four states currently regulate medical waste incineration. A more glaring and critical gap in the states' regulatory efforts is indicated by the fact that only 5 states now require incineration of infectious wastes.[8]

Autoclaving:

Autoclaving or steam sterilization is applied to approximately 15% of the medical waste stream. Yet, the process remains unproven as an effective means of treating medical waste. Available information suggests that operating conditions and practices vary widely among facilities. For instance, although the effective destruction of certain bacteria requires exposure periods of 90 minutes, some facilities apply only a 20 to 30 minute time period.[9] Moreover, only four states specifically regulate the time, temperature, and pressure conditions, although such conditions are key to the sterilization of infectious materials.[10] Finally, wastes that are sterilized require additional treatment or disposal.

It should be noted that much of the material that is washing ashore requires treatment and disposal beyond sterilization. EPA should develop testing procedures to demonstrate the effectiveness of autoclaving and determine proper operating conditions. Binding regulations should at a minimum specify time, temperature, and pressure requirements. NRDC also recommends that the practice, in general, be limited until such regulations and testing procedures are developed.

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[8] The Council of State Governments, "State Infectious Waste Regulatory Programs," 1988, at 10 and 15.

[9] William Rutala, et al., "Decontamination of Laboratory Microbiological Waste by Steam Sterilization," Applied and Environmental Microbiology, 43(6) : 1311-1316, June 1982.

[10] Op. cit., Council of State Governments, at 15.

Landfilling:

The conditions present at Subtitle D facilities across the nation rule out these facilities for the disposal of medical waste. The vast majority of these facilities are unlined, lack leachate collection systems, and do not monitor for groundwater contamination. EPA should prohibit the disposal of medical waste at Subtitle D facilities and require that medical waste be disposed of only at licensed hazardous waste facilities.

Sewage disposal:

Astonishingly, the practice of pouring medical wastes down sewer drains remains one of the "recommended" methods of disposal. In theory, facilities discharge their wastes in the expectation that the waste will be dealt with at municipal and county sewage treatment plants. In reality, medical facilities following this recommendation are releasing their wastes without assurance that treatment will in fact take place, and are contributing to the nation's water pollution problems in several respects. First, many municipal sewer systems continue to discharge millions of gallons of raw sewage. The discharge of raw sewage is a particular problem for those communities with antiquated systems that overload with storm drain runoff. High bacterial counts from sewage wastes are also responsible for recent beach closings.

Second, the nation's sewage treatment plants have not demonstrated sufficient implementation of secondary and tertiary treatment systems. Although 87% of the nation's publicly owned sewage treatment plants have met the July 1, 1988 EPA deadline for compliance with the Clean Water Act's requirement for secondary treatment, more than 400 plants have not. The non-complying systems include some of the large municipal systems, such as Boston and New York City. The absence of tertiary treatment systems is even more glaring.

Finally, medical wastes contribute to contaminated sewage sludge. Sewage treatment technologies are not suited for the treatment of the chemical, radioactive, and metallic agents contained in some medical wastes. The problem is particularly critical because of the difficulty of disposing of contaminated sludge. In NRDC's view, the nation's sewage treatment systems cannot and should not handle medical waste. The practice is unacceptable in principle and should be prohibited.

C. EPA's Role in Infectious Waste Management

Q: What roles should EPA and/or the states play in the management of infectious wastes? Should there be a federal regulatory structure for infectious waste management or should the federal role be one of providing technical assistance and guidelines for state infectious waste programs? Should EPA's role be in the transfer of information on infectious waste to states, localities, and the public?

The mismanagement of medical waste is a national problem. Critical gaps appear in the states' medical waste management programs at every juncture. It is clear from a review of the current situation that the management of medical waste must be addressed on the federal level, with EPA as the lead regulatory and enforcement agency.

EPA's Guide For Infectious Waste Management is a poor substitute for an effective national policy. The Guide admits that it is intended to serve only as a "reference" document, and even then, only addresses the "problems posed by infectious characteristics." The Guide ~~is~~ not enforceable; it does not have the effect of law.

Even as a reference document, the Guide fails to make recommendations on the best available methods and technologies for the management of medical waste. Instead, it states, "Management options for an individual facility should be selected on the basis of what is most appropriate for that particular facility. Factors such as location, size, and budget should be taken into consideration."[11] Such an approach leaves too much latitude to those making the decision on the individual facility without some limits on the exercise of discretion in the form of best available technology or design and operating specifications. The least cost alternative is likely to be selected, in some cases, regardless of the potential environmental impacts.

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[11] 11. Op. cit., EPA Guide for Infectious Waste Management, at 3-2.

NRDC urges that medical wastes be managed as hazardous wastes. EPA needs no additional authority to include medical wastes in the hazardous waste system. By doing so, the Agency can act effectively to prevent both the considerable threats to human health posed by illegal and inappropriate practices, and a worsening of the medical waste management crisis. Clearly, EPA's position that, "considerable evidence that [medical] wastes cause harm to human health and the environment is needed to support federal rulemaking," is no longer tenable.[12] The environmental harm has been demonstrated beyond question this summer; the health risks are at least as serious as in 1978, when EPA proposed to list infectious waste as hazardous -- and that was before AIDS had been identified as the scourge it has become.

D. Tracking System for Infectious Waste

Q1: What type of tracking system would be most appropriate for infectious wastes? Which infectious waste should be tracked?

NRDC recommends that two concurrent tracking systems be established. The first system would identify manufacturers, distributors, commercial purchasers of medical supplies, and medical facilities, and would place identifying marks on medical products. The system would resemble that which already exists for food and other over the counter items, such as aspirin. A coded identification should be imprinted on the product and be resistant to exposure to sea water and other elements that would otherwise obscure the product's identity. Authority under TSCA §6, the Federal Food, Drug, and Cosmetic Act, and the Consumer Product Safety Act should be explored to support such a marking program.

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[12] Ibid., at vi.

The second system should be the same as the RCRA Subtitle C manifest system that tracks hazardous waste from the point of generation to the point of disposal. The manifest tracking system should apply to all medical waste, and should include waste treated at on-site incinerators. Additionally, those facilities with on-site incinerators should be required to account for the disposal of their ash. Only then, can we ensure that ash disposal requirements are followed and medical wastes are not co-disposed of with incinerator ash and other combustion residues. NRDC recommends that ash be disposed of separately from other wastes in order to reduce the leaching of toxic metals present in incinerator ash.

Q2: Should exception reporting be required?

Without access to the manifest, regulatory authorities will not be informed about the specific quantities, types, and hazards of the medical wastes that are removed for treatment and disposal, the dates that shipments are scheduled to take place, and the identities of waste haulers. For this reason, exception reporting is an essential element in a tracking system. Not only does the fact of exception reporting act as an incentive for compliance, but the information contained in the exception report is necessary for the identification of violators.

E. Exemptions From an Infectious Waste Control Program

Q: Should any generators of infectious waste be exempt from management controls? Do small health care operations pose less risk because of the amount of waste they produce?

The regulations should specify that all generators of medical waste, regardless of size or quantities of wastes produced, are subject to the federal medical waste management system. Neither the size nor the quantity of waste produced at a particular facility are relevant factors in protecting public health and the environment from the threats and risks posed by medical waste. As we have seen this summer, even a few syringes resulted in beach closings. NRDC further recommends that EPA conduct a study on the feasibility of implementing return policies for certain medical wastes, such as insulin needles, which are disposed of in household waste.

Conclusion:

NRDC strongly urges EPA to respond aggressively to the medical waste management crisis by moving quickly to regulate medical waste by including it in the hazardous waste management system under RCRA Subtitle C. The potential health risks, and the documented economic and aesthetic costs of mismanaged medical waste demand an expeditious, effective response by the federal government. We would welcome the opportunity to discuss these issues further with Agency Staff.

	Exceedances (ppm)	Number of expected exceedances [1]	NAAQS ozone [2]
Bradley County			
1983	none	0.00	0.12 ppm
1984	none		
1985	none		
(Total	0 exceedances)		
Hamilton County			
VAAP:			
1984	none	0.33	0.12 ppm
1985	.125		
1986	none		
(Total	1 exceedances)		
Sequoyah:			
1984	none	0.70	0.12 ppm
1985	none		
1986	127, .128		
(Total	2 exceedances)		

[1] Three-year average.

[2] Not to be exceeded more than once per year.

Evidence submitted by the State and the Region IV Air Compliance Branch files have been reviewed to determine if the sources in Bradley County and Hamilton County to which the VOC regulations apply are fully implementing the EPA-approved control strategy. This review confirms that all sources in Hamilton County and Bradley County subject to the VOC regulations have either installed and are operating RACT controls or are on an enforceable compliance schedule.

For a more detailed discussion, please refer to the Technical Support document which is available for inspection at the EPA Region IV office.

Proposed Action: Therefore, on the basis of three years of air quality data showing attainment and evidence of an implemented EPA-approved control strategy, EPA proposes to redesignate Bradley County and Hamilton County from ozone nonattainment to attainment.

The public is invited to participate in this rule making by submitting written comments on these proposed actions.

Evidence reviewed by EPA indicates that the sources in Bradley County and Hamilton County to which the VOC regulations apply are fully implementing the EPA-approved control strategy.

For a more detailed discussion, please refer to the Technical Support Document which is available for inspection at the EPA Region IV office.

Proposed Action: Therefore, on the basis of three years of air quality data showing attainment and evidence of an implemented EPA-approved control strategy, EPA proposed to redesignate Bradley County and Hamilton County from ozone nonattainment to attainment.

The public is invited to participate in this rule making by submitting written comments on these proposed actions.

Under 5 U.S.C. 605(b), the Administrator has certified that area redesignations do not have a significant economic impact on a substantial number of small entities. (See 46 FR 8709).

The Office of Management and Budget has exempted this rule from the requirements of section 3 of Executive Order 12291.

List of Subjects in 40 CFR Part 81

Air pollution control, National Parks, Wilderness areas.

Authority: 42 U.S.C. 7401–7642.

Dated: June 24, 1987.

Lee A. DeHihns III,

Acting Regional Administrator.

[FR Doc. 88–12366 Filed 6–1–88; 8:45 am]

BILLING CODE 6560-50-M

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40 CFR Part 261

[FRL–3390–5]

Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Infectious Waste Management

AGENCY: Environmental Protection Agency.

ACTION: Notice of data availability and request for comment.

Editorial Note: This document was received at the Office of the Federal Register on May 27, 1988.

SUMMARY: The Agency today is publishing a notice of data availability and request for comment on issues pertaining to infectious waste. In particular, EPA is announcing the availability of several documents which provide current information on infectious waste definition and management issues. In addition, in response to recent public concern over potential hazards posed by mismanagement of infectious wastes, the Agency is requesting comment on several issues concerning the management and disposal of infectious waste.

DATES: EPA will accept public comments on the issues posed in this notice until August 1, 1988.

ADDRESSES: The public must send an original and two copies of their comments to: EPA RCRA Docket (S–201) (WH–562), 401 M Street SW., Washington, DC 20460.

Place "Docket number F–88–IWMA–FFFFF" on your comments. The Office of Solid Waste (OSW) docket is located in the sub-basement at the above address, and is open from 9:00 to 4:00, Monday through Friday, excluding Federal holidays. The public must make an appointment to review docket materials at (202) 475–9327. The public may copy material from any regulatory docket at a cost of $0.15 per page.

FOR FURTHER INFORMATION CONTACT: The RCRA/Superfund Hotline at (800) 424–9346, or at (202) 382–3000. For additional information contact Denise Zabinski, Office of Solid Waste (WH–562B), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 382–7459.

SUPPLEMENTARY INFORMATION:

Outline of Today's Notice

I. Background
II. Availability of Data
III. Issues Presented for Public Comment
  A. Definition of Infectious Waste
  B. Nature of the Problem Posed by Infectious Waste
  C. EPA's Role in Infectious Waste Management
  D. Tracking System for Infectious Waste

E. Exemptions From an Infectious Waste Control Program
List of Subjects in 40 CFR Part 261

I. Background

Today's Notice is in response to increased recent interest regarding infectious waste handling, treatment, and disposal. The purpose of this Notice is to make Agency information on the safe management of infectious wastes available to the public and to solicit public comment on a number of issues pertaining to infectious waste and the possible need for further governmental action. The Agency believes that the proper management of infectious waste is crucial to ensure that any potential hazards to the public and to individual workers are avoided.

By way of background, on December 18, 1978, the Agency proposed regulations under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (Pub. L. 94–580 (Oct. 21, 1976)), which would classify certain infectious wastes as hazardous waste. These wastes included infectious waste generated by certain departments in health care facilities and veterinary hospitals, by laboratories handling etiologic agents, and by sewage treatment facilities, unless these wastes were sterilized or incinerated in accordance with specified methods. (December 18, 1978, 43 FR 58946, 58950.)

The Agency proposed to list these wastes as hazardous because the Agency believed at that time that if they were improperly managed, they could pose a substantial hazard to human health and the environment. It should also be noted that the statutory definition of hazardous waste specifically cited infectiousness as one of the properties that the Agency should consider in its evaluation in defining wastes as hazardous: see section 1004(5), where it states "the term hazardous waste means a solid waste, or combination of solid wastes which because of its quality, concentration, or physical, chemical, or infectious characteristics, may . . .". Significant comments were received on the proposal; based upon these comments infectious waste was not identified or listed as a hazardous waste when the regulations were made final on May 19, 1980. See 45 FR 33087. Instead, the Agency initiated several activities to collect information and assess the problems posed by infectious waste management and disposal. This information was then used by the Agency to develop a draft guidance document in 1982 (on which comment was solicited) on infectious waste management. EPA then brought in professionals from the health care industry to provide additional information in preparing a final guidance document which was published in 1986. This document outlined a prescriptive program for the management of infectious waste. See "EPA Guide for Infectious Waste Management", described in further detail in Part II, below. Additional guidance on the management of infectious waste has also been provided. See "Hospital Waste Combustion Study", also in Part II below, for a more detailed discussion.

In addition to publishing guidance in May 1986, the Agency has taken an active role in training health care professionals regarding the responsible management of infectious waste. Staff from the Agency have participated as faculty or professional experts at symposia sponsored by the American Hospital Association and the American Society for Hospital Engineering.

Furthermore, in November of 1987, as a result of several isolated incidents of improper management and disposal of infectious wastes and growing public concern about the potential threat of infectious waste to human health and the environment, the Agency called together a panel of experts to discuss the definition of, proper management, and risks posed by infectious wastes (see Part II for further discussion of this meeting).

Today's notice of data availability and request for public comment is a further effort to (1) make available to the public and those persons responsible for managing infectious waste the EPA guidance manual, and (2) solicit comment on issues of concern regarding the proper management of infectious waste. The Agency believes that the proper management of infectious wastes can significantly reduce the risks associated with these wastes. The Agency, with this Notice, will reevaluate and assess the problems posed by infectious wastes to determine if further Federal governmental action is necessary.

II. Availability of Data

As already indicated, the agency has not promulgated regulations controlling the management of infectious waste; instead, a number of guidance documents have been prepared to assist the states and others interested in the management of infectious waste. These documents are: (1) "EPA Guide for Infectious Waste Management", U.S. EPA, Office of Solid Waste and Emergency Response, EPA/530-SW-86-014, May, 1986; and (2) "Hospital Waste Combustion Study, Data Gathering Phase, Final Draft Report", prepared by Radian Corporation, Research Triangle Park, NC for U.S. EPA, Office of Air Quality Planning and Standards, EPA Contract No. 68-02-4330, October, 1987. Each of the these documents is included in the RCRA public docket, at the address listed above. The following is a brief description of each document and includes further information on how the public can obtain copies:

(1) The "EPA Guide for Infectious Waste Management" outlines the EPA perspective on environmentally acceptable techniques for managing infectious wastes. Topics covered include a definition of infectious waste, the various categories of waste included under the definition, and recommended practices for packaging, transportation, treatment, storage, and disposal of these wastes. In particular, the document discusses various types of treatment alternatives and describes the suggested treatment methods for each waste category. The document is intended to provide guidance to persons responsible for infectious waste management. State and local regulatory agencies also will find this manual useful as resource material. Copies are available as publication No. PB86 199130 from the National Technical Information Service (NTIS), Port Royal Road, Springfield, Virginia (703) 478–4650. This document is also available in the RCRA public docket.

(2) The "Hospital Waste Combustion Study", October, 1987, summarizes readily available information on the hospital waste combustion industry including waste characterization, industry technology, multipollutant air emissions data, emission control technologies, current regulation and control strategies, and hospital waste combustor population characteristics, including suggested model plant parameters for use in exposure modeling. The study was initiated by EPA's Office of Air Quality Planning and Standards in response to increasing concerns over the potential public health impacts from the disposal of hospital wastes, including incineration and other methods of disposal. This document is available in the RCRA public docket.

In addition to the development of these documents, the Agency held a meeting last November to discuss issues pertaining to infectious waste management. The primary purpose of this meeting was to discuss and evaluate the nature and extent of the risks to human health and the environment posed by wastes that contain infectious materials. The meeting was held in response to growing concerns about infectious waste management and to assist EPA in determining whether the Agency should undertake any additional action under the Resource Conservation and Recovery Act. Infectious waste issues were discussed by a group of experts representing health care professionals and practitioners from government, academia, industry and professional and trade associations called together by the EPA. The proceedings of this meeting have been made available to the public. (See "Report on the Proceedings of the EPA Infectious Waste Management Meeting, November 12, 1987, EPA Headquarters, Washington, D.C.", available in the RCRA public docket).

The Agency also has examined a recent survey, entitled, "State Infectious Waste Regulatory Programs", assembled for the Council of State Governments, which summarizes the current status of state infectious waste regulations. This document is available from the Council of State Governments and a copy has been placed in the RCRA public docket for this notice.

III. Issues Presented for Public Comment

Several recent incidents involving infectious waste mismanagement have resulted in a number of infectious waste issues being presented to the Agency. The Agency is offering today, for public comment, issues concerning infectious waste. These issues are intended to solicit information which will help the Agency to better understand the problems posed by infectious waste, to identify additional sources of information, and to determine whether further guidance or rules should be developed by EPA. Each of these issues is presented below, introduced by a brief discussion and followed by specific questions for comment.

A. Definition of Infectious Waste

EPA currently defines infectious waste as waste capable of causing infectious disease. This definition requires the consideration of several factors contributing to the risk of introduction of disease. As described in EPA's guidance manual, these factors include: (1) Presence of a pathogen of sufficient virulence; (2) dose of the pathogen; (3) portal of entry; and (4) resistance of host. For a waste to be infectious, it must contain pathogens with sufficient virulence and quantity so that exposure to the waste by a susceptible host could result in infectious disease. EPA has identified in the Guidance Document six infectious waste categories, including: (1) Isolation wastes; (2) cultures and stocks of infectious agents and associated biologicals; (3) human blood and blood products; (4) pathological wastes; (5) contaminated sharps; and (6) contaminated animal carcasses, body parts and bedding.

The Center for Disease Control (CDC) under the Department of Health and Human Services has also issued guidelines on infectious waste. Both EPA and CDC define infectious waste according to both waste characteristics and waste type. The CDC guidelines differ only slightly from EPA's guidelines in how they define infectious waste. In particular, both Agencies consider microbiological waste, pathological waste, blood, and contaminated sharps as infectious waste. EPA considers communicable disease isolation wastes as infectious, while CDC recommends such waste be treated according to hospital policy. EPA also has identified certain wastes such as surgery and autopsy wastes, dialysis unit wastes, and contaminated equipment, which the Agency lists as optional infectious wastes, and thus may require special handling. CDC does not consider these optional wastes infectious. Also, CDC's guidelines only pertain to hospitals while EPA's guidance deals with a wider variety of sources.

The state tend to classify infectious waste in one of three ways: (1) As a hazardous waste; (2) as a special waste; or (3) as a solid waste. The trend is to classify infectious wastes as special or solid wastes. Current state regulations vary with respect to how they define infectious waste. Approximately two-thirds of the states have definitions in place or are currently adding to or amending their definitions of infectious waste. Of the 19 states that have definitions in place which are not undergoing amendment, approximately half include the four common EPA/CDC infectious wastes in their definitions. While there exists a certain amount of variation among the States' regulations, there appears to be some general agreement among the states as to the basic definition of infectious waste.

The Agency is requesting comment on the following issues concerning defining infectious waste: Is EPA's current definition of infectious waste appropriate? If not, how should infectious waste be defined? Should this definition be based on waste characteristic, waste type, waste source, or a combination of these factors? Are there different categories of infectious waste that warrant differing degrees of control?

B. Nature of the Problem Posed by Infectious Waste

Infectious wastes are generally disposed of through incineration, landfilling, or disposal in public sewers. Treatment of these wastes may or may not occur prior to disposal in landfills or sewers. Such treatment if it occurs, is called pretreatment, and for infectious waste normally involves some form of sterilization of the waste, either through steam, chemical or other method or process of sterilization. The goal of pretreatment is to greatly reduce, if not eliminate, any infectious characteristic. Approximately 56 percent of the states require or are considering requiring pretreatment before land disposal. At least twelve states currently allow, under certain conditions, land disposal of infectious waste without pretreatment.

Current literature indicates that the risks posed by infectious waste are primarily occupational, potentially affecting those people who encounter these wastes from the point of generation to the point of disposal. Two occupations that regularly encounter infectious waste are hospital employees and waste disposal workers. The Agency, therefore, is interested in the risks posed to these two groups, as well as any risks posed to the general public.

The risks posed to these groups may be specific to certain wastes, such as contaminated sharps (e.g., scalpels and hypodermic needles), or to certain management practices. The Agency also is interested in how proper packaging of these wastes can curtail occupational risks posed to the groups mentioned above. Proper packaging of these wastes reduces the potential for exposure which is a necessary factor for transmission of these diseases. This point is recognized in that 15 states currently impose packaging/handling requirements on infectious waste generators, and 16 states are considering imposing such requirements.

The Agency requests comment on the following issues: What are the risks and problems posed by exposure to infectious waste? To what extent is the mismanagement of these wastes a problem? If fully implemented, are the current pretreatment and packaging practices capable of reducing the risks posed by infectious waste or are additional requirements necessary? Should specific disposal requirements be placed on specific wastes (i.e., sharps)?

C. EPA's Role in Infectious Waste Management

As already discussed, EPA does not regulate infectious wastes as a hazardous waste. Under RCRA, the Agency has the authority to regulate these wastes as hazardous. As discussed above, the Agency has chosen to issue guidelines on proper infectious waste management. In addition, infectious wastes are subject to regulation as non-hazardous solid waste under Subtitle D of the Resource Conservation and Recovery Act (RCRA).

Many states have developed or are currently developing legislation and regulations to address infectious wastes. These state initiatives are relatively recent efforts, stimulated by the growing concern over infectious waste management. There is considerable variation in the scope and level of stringency among the various state efforts. Currently 39 states have some form of infectious waste regulation. Five of the states without such regulations plan on developing them soon. Currently, 88 percent of the states are, or will soon be, regulating infectious waste. This compares with 57 percent of the states that regulated infectious wastes in 1986.

It has been suggested that one alternative to Federal regulation of infectious waste is the development of a model state program. A model state program is a comprehensive management program designed to provide guidance to states which are developing similar programs. The model programs serve to make the expertise of the Agency available to states and localities that may need assistance in developing comprehensive and effective programs. Such models can provide useful information and guidance to those states developing programs, but also provide state with the flexibility to tailor the model to their individual state needs.

The Agency is requesting comment on the following issues concerning EPA's role in infectious waste management: What roles should EPA and/or the states play in the management of infectious waste? Should there be a Federal regulatory structure for infectious waste management or should the Federal role be one of providing technical assistance and guidelines for state infectious waste programs? Should EPA's role be in the transfer of information on infectious waste to states, localities, and the public? Is a model state program for regulation of infectious wastes necessary or helpful? If so, are there particular areas on which such a program should concentrate?

D. Tracking System for Infectious Waste

Several instances of improper disposal of infectious waste have been documented. It has been suggested that a tracking system may alleviate the possibility of such improper disposal. Tracking a waste can serve to improve the accountability of the parties involved in the management and disposal of that waste. In this way, tracking has the potential to improve compliance with management and disposal regulations.

Currently, infectious wastes are not subject to any Federal tracking requirements. If these wastes were simply classified as hazardous wastes by Federal regulations, they would be subject to the manifesting requirements of RCRA Subtitle C regulations. The manifest tracking requirement of Subtitle C relies on exception reporting for tracking of waste. Exception reporting requires generators of regulated wastes who do not receive proper copies of the manifest from the disposal facility to report this noncompliance to a designated authority.

Some tracking of infectious waste is currently being implemented at the state level. A number of states have or are considering imposing transportation and recordkeeping requirements on infectious waste generators and haulers. In some states the types of shipping papers required are specified. Where tracking is addressed in these state regulations, the tendency is to require the generator to maintain records on site, rather than submit manifests to the State.

The Agency requests comment on the following tracking issues. What type of tracking system would be most appropriate for infectious wastes? Which infectious wastes should be tracked? Should exception reporting be required?

E. Exemptions From an Infectious Waste Control Program

Although much of the infectious waste that is generated comes from hospitals and large laboratories, there are many small generators in the form of private offices, clinics, and smaller labs which may become subject to regulation, if not otherwise exempted. Under current Subtitle C regulations, small quantity generators of hazardous waste are subject to certain conditional exclusions. Presently, all but six states have or are considering regulations pertaining to infectious waste. The majority of states identify hospitals as the target generator for regulation of infectious waste. Many of the states that regulate hospitals also regulate clinics. Approximately half of the states that regulate hospitals also regulate doctors and dentists offices, and animal care facilities. Five states currently exempt small quantity generators from some or all infectious waste requirements.

The Agency requests comments on the following issues concerning exemptions from infectious waste controls: Should any generators of infectious waste be exempted from management controls? Do small health care operations pose less risk because of the amount of waste they produce? If no generators are exempted, how many generators would be subject to infectious waste controls?

The Agency specifically requests comments on all of the issues included in today's notice. Comments on additional issues related to infectious waste will also be accepted. Once the Agency has reviewed all of the public comments, the Agency plans to evaluate the need for additional information, to collect and examine such information; and to ultimately develop an effective Federal program addressing infectious waste. Upon evaluating the comments solicited in today's notice the Agency will also reevaluate the status of the existing EPA guidance document on infectious waste.

List of Subjects in 40 CFR Part 261

Hazardous materials, Waste treatment and disposal, Recycling.

Authority: Sec. 3001 RCRA, 42 U.S.C. 6921.

Date: May 27, 1988.

J. Winston Porter,

Assistant Administrator.

[FR Doc. 88-12367 Filed 6-1-88; 8:45 am]

BILLING CODE 6560-50-M

DEPARTMENT OF THE INTERIOR

Office of the Secretary

43 CFR Part 11

Natural Resource Damage Assessments

AGENCY: Department of the Interior.

ACTION: Advance notice of proposed rulemaking.

SUMMARY: The Department of the Interior (the Department) intends to develop additional simplified (type A) procedures for assessments of natural resource damages resulting from a discharge of oil or release of a hazardous substance. The Department is

A
SOLID WASTE
BLUEPRINT
FOR NEW YORK STATE

Natural Resources Defense Council
Environmental Defense Fund
INFORM*
Environmental Action Coalition
Scenic Hudson

March 1988

A
SOLID WASTE BLUEPRINT FOR NEW YORK STATE

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March 1988

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* INFORM's solid waste program focuses on research and reporting of ways in which U.S. solid wastes are managed today and on identifying options for reducing, recycling or more safely burning or landfilling these wastes in the future. INFORM does not make legislation recommendations. However, we are co-sponsoring this report based on our conclusion that, if New Yorkers want the most economical and environmentally sound solid waste management for their state, the government measures called for in this report are -- according to our research findings -- constructive and practical ways to move toward this goal.

FOR FURTHER INFORMATION ON SOLID WASTE ISSUES, CONTACT:

Natural Resources Defense Council, Inc.
122 East 42nd Street, 45th Floor
New York, New York 10168
(212) 949-0049

Environmental Defense Fund, Inc.
257 Park Avenue South
New York, New York 10010
(212) 505-2100

INFORM, Inc.
381 Park Avenue South
New York, New York 10016
(212) 689-4040

Environmental Action Coalition
625 Broadway, 2nd Floor
New York, New York 10002
(212) 677-1601

Scenic Hudson, Inc.
9 Vassar Street
Poughkeepsie, New York 12601
(914) 473-4440

FOR ADDITIONAL COPIES OF THIS REPORT:

Please send $10 ($5 for members of NRDC, EDF, INFORM, EAC or Scenic Hudson) to:

Natural Resources Defense Council, Inc.
122 East 42nd Street, 45th Floor
New York, New York 10168
Attention: Wallace Boulton

ACKNOWLEDGEMENTS

This report was written by Eric A. Goldstein, Mark A. Izeman and William W. Buzbee of the Natural Resources Defense Council, Inc.; Michael Herz, Richard Denison and John Ruston of the Environmental Defense Fund, Inc.; Marjorie J. Clarke and Allen Hershkowitz of INFORM, Inc.*; Nancy Wolf of the Environmental Action Coalition; and Cara Lee of Scenic Hudson, Inc.

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This report was typeset, laid out and produced, with precision and grace under pressure, by Wallace Boulton, assisted by Maria Alevrontas and Steven Blevins.

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* Allen Hershkowitz has recently left INFORM and is now President of Municipal Recycling Associates, Inc., a New York based consulting firm.

** Generous support from the Robert Sterling Clark Foundation also made possible the participation of the Environmental Defense Fund in this project.

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APPENDIX A A-1

INTRODUCTION AND SUMMARY

The next six to twelve months will be a watershed for New York State's solid waste future. The Governor and the State Legislature are now considering legislative solutions to the state's garbage disposal problem, with recycling and waste reduction at the head of the list. Indeed, the Governor, the Assembly and the Senate have already introduced three separate solid waste bills for action in the current legislative session. At the same time, the State Department of Environmental Conservation ("DEC") is preparing final rules concerning the operation of garbage burning incinerators and the disposal of incinerator ash and is revamping existing solid waste regulations. These legislative and administrative actions will shape New York solid waste policy well into the 21st century.

There is no longer serious disagreement that the state is facing a refuse disposal problem of considerable dimensions. New Yorkers produce approximately 50,000 tons of solid waste every day, most of which goes to landfills. Yet these facilities are filling up faster than they can be replaced and pose recognized risks, particularly to underground drinking water supplies and the environment. Meanwhile, solid waste incineration, which some communities hoped could solve their disposal needs, involves major air quality and ash disposal problems as well as significant economic costs. Waste reduction and recycling could provide much relief, as the state's solid waste management plan acknowledges. To date, however, these measures have not been widely implemented in New York.

In the face of the state's very real solid waste challenge, it is encouraging that New York's highest officials, Governor Cuomo, Senator Anderson and Speaker Miller and their colleagues and staffs, have recognized the urgent need for legislative action on this issue in the current session. But the extent to which state pronouncements supporting environmentally sound solid waste policies are turned into reality depends upon the specific programs created in the months ahead.

In this report, five major environmental organizations from around the state set forth our recommendations for these programs. To our knowledge, this report is the first broad-based, coordinated effort on this issue by environmental groups since the 1984 release of recommendations by the Citizens Task Force on Resource Recovery in New York State, an effort in which many of the groups involved in this present report participated. To be sure, it is not the purpose of this report to discuss every possible solid waste disposal option. Particularly in the area of waste reduction, we identify only a handful of alternatives that are or will soon be available to government decision-makers. This report is intended only to present the first steps we believe government officials should consider in these coming months.

The report is divided into three chapters: (I) waste reduction and recycling; (II) incinerator air pollution; and

(III) incinerator ash handling and disposal.[1] The order of these chapters is no accident. We have placed our recommendations for recycling and waste reduction first because we believe that these approaches must be the top solid waste priorities for New York State officials.

We cannot state too strongly our conviction that recycling and waste reduction must be the basis of an environmentally and economically sound waste management system. Public health and environmental threats posed by solid waste incineration have prompted all of our organizations to view statewide proposals for garbage burning incinerators with concern. Indeed, we believe that no operating permits for garbage burning incinerators in this state should be granted until far-reaching recycling and waste reduction statutes have been enacted and comprehensive regulations governing incinerator air emissions and ash residue, as recommended in this report, have been adopted.

We hope that the recommendations in this report will serve as a springboard for legislative and administrative actions that make New York State the national leader in enacting an environmentally sound solid waste program.

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[1] The one area of the state solid waste management system that this report does not explore in detail is landfilling. In chapter III we discuss the problems associated with the land disposal of incinerator ash. But the larger issue -- the public health and environmental risks posed by existing and recently closed solid waste landfills -- deserves further attention. We expect to participate in those debates as discussions on the Department of Environmental Conservation's new landfilling regulations move forward later this year.

Among our major recommendations, discussed more fully in this report, are the following:

Recycling and Waste Reduction Legislation:

- Enact a statewide mandatory recycling law that directs localities to require residents, commercial establishments and private and public institutions to separate from their trash a minimum of three recyclable materials (e.g., papers, glass, and metals) and requires municipalities to meet increasingly stringent numerical recycling targets consistent with the state's 40% recycling goal by 1997;[2]
- Mandate that all municipalities establish composting programs for leaves and yard and kitchen wastes;
- Enact a state packaging tax to encourage the use of recycled and recyclable materials in packaging and empower the State Department of Environmental Conservation to regulate the use of non-recyclable or non-recycled materials in packaging;
- Direct municipalities to establish programs for the collection of household hazardous wastes (e.g., waste oils, pesticide cans, cleaning solvents), and enact legislation requiring deposits on certain hazardous materials (e.g., automotive and household batteries); and
- Boost state financial and technical assistance for local waste reduction and recycling efforts, with at least $50 million in annual funding to be drawn from the combination of a recapture of unclaimed beverage container deposits (as part of an overall bottle bill revision), a state packaging tax, increased tipping fees at municipal landfills and incinerators, and, if necessary, general revenues.

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2. The New York State Department of Environmental Conservation's New York State Solid Waste Management Plan, 1987-1988 Update establishes a goal of reducing and recycling 50% of the solid waste generated in New York State by 1997 (40% recycling; 8-10% waste reduction). Id. at S-5.

Incinerator Air Pollution Regulations:

-- Require all new incinerators to meet a particulate emissions standard of 0.010 gr/dscf, an opacity limit of 5%, and strict emissions limits for sulfur dioxide, hydrogen chloride, oxides of nitrogen and certain toxic metals;

-- Set emission limits for dioxins and furans of 0.1 nanograms per normal cubic meter (ng/Nm^3) [in Eadon equivalents] for new facilities and 0.5 to 2.0 ng/Nm^3 for existing facilities, as recommended by the Swedish Environmental Protection Board;

-- Enact other comprehensive regulations including: (1) temperature requirements to insure complete combustion of organics; (2) the installation of auxiliary gas burners and their use during start-up, shut-down, and all upset conditions; and (3) gas cooling requirements;

-- Require comprehensive training and certification for control room operators and other key incinerator personnel;

-- Mandate continuous monitoring for key pollutants and operating parameters; require monthly stack tests for particulates, bi-annual stack tests for metals and organics, and additional stack sampling when continuous monitoring or test data indicate poor incinerator operations;

-- Require that all existing incinerators meet the specified emissions and operating standards within four years; and

-- Design regulations and research and development programs to encourage alternative technologies that pre-sort metals and other toxic materials prior to incineration.

Incinerator Ash Handling and Disposal Regulations:

-- Mandate the separation of fly ash and bottom ash; require that samples be tested for EP toxicity, toxicity of leachate using only distilled water as a leaching medium, and total concentration of heavy metals, dioxins, and furans;

-- Require adoption of detailed plans for the safe on-site handling and transportation of incinerator ash, and collection and treatment of related wastewaters;

-- Direct the separate disposal of fly and bottom ash in monofills equipped with leachate collection systems above and between liners and extensive groundwater monitoring wells; ash that exceeds the EP toxicity test or distilled water test limits should be disposed of in a monofill, at a minimum with two composite liners;

-- Require incinerators to achieve 90% overall volume reduction of all solid waste entering the furnace; and

-- Facilitate the separation of metals from the waste stream prior to incineration to reduce the toxicity of incinerator ash.

I. WASTE REDUCTION AND RECYCLING

Waste reduction and recycling are now moving to the center of New York's solid waste debates. Every ton of waste recycled (or not generated in the first place) is a ton that need not be burned or disposed of in a landfill. Recycling's environmental impacts are significantly less than those caused by incinerator smokestacks, dispersed ash, or leaking ashfills and landfills. Landfills have created well-recognized groundwater contamination and other health and environmental threats. Incinerators emit large quantities of a variety of dangerous air pollutants and leave behind a toxic residue that amounts to a third of the waste, by weight, that was put into the garbage burning plant.

The environmental benefits of recycling go beyond the avoided harms of waste disposal. Using recovered materials in place of virgin substances conserves natural resources, saves energy, and reduces pollution from manufacturing processes.[3] In addition, studies have shown that recycling is simply cheaper than other forms of waste management.[4]

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[3] See, for example, Robert C. Letcher and Mary Sheil, "Source Separation & Citizen Recycling," in William D. Robinson, ed., The Solid Waste Handbook (1986) at 220, Table 10.1; see also Allen Hershkowitz and Eugene Salerni, Garbage Management in Japan: Leading the Way (1987).

[4] See, for example, Citizens League, The New Weigh to Recycle (1987); Institute for Local Self-Reliance, Garbage Disposal Economics: A Statistical Snapshot (1987); Robin Kordik, Environmental Allowance: Refining Traditional Cost-Benefit Analysis Applied to Evaluation of Waste Reduction and Recycling Programs (Washington State Department of Ecology, 1987); Environmental Defense Fund, To Burn or Not To Burn (1985).

The state legislature has recognized these advantages.[5] Similarly, the state's solid waste management plan and its amendments have set out a waste management hierarchy that places waste reduction and recycling at the top, followed by incineration with energy recovery and landfilling.[6] Indeed, the plan establishes a goal of reducing or recycling 50% of the solid waste generated in New York State by 1997.[7]

This hierarchy and the plan's reasonably ambitious goals, while an important first step, are not self-executing. For New York State to move toward a recycling-based waste management system will require leadership from Albany. Some communities have recycling programs underway, and New York State can boast of some of the nation's most successful municipal programs. But political inertia, a lack of funding, and concerns about logistics and markets have made it difficult for localities to launch large-scale recycling projects by themselves.

The Governor and the Legislature should become the stewards of environmentally sound waste management strategies. The Governor's solid waste program bill (A.8736) and the Assembly bill spearheaded by Assemblyman Maurice Hinchey (A.8823) aim in

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5. See, for example, 1980 N.Y. Laws Ch. 552, §1; N.Y. Envtl. Conserv. Law §§3-0301(1), 27-0101.2, 27-0403; 1972 N.Y. Laws Ch. 659, §1.

6. New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 1-7.

7. The plan calls for a 40% recycling rate and 8-10% source reduction. New York State Solid Waste Management Plan, 1987-1988 Update, supra note 2 at S-5.

the right direction. Both bills place waste reduction and recycling at the top of their waste management priorities. And although both bills fall short in several areas, they contain strategies needed to accelerate waste reduction and recycling activities around the state. The Senate bill, introduced by Senator Joseph Bruno and his colleagues (S.6600), also recognizes the importance of recycling and waste reduction and proposes several modest steps to advance these objectives. But in its present form, the bill does not do enough to insure that waste reduction and recycling are top priorities. (A summary of the major provisions of all three bills is set forth as Appendix "A" to this report.)

In the following sections, we outline our recommendations for strengthening New York's efforts to spur waste reduction and recycling.

A. Require Statewide Mandatory Recycling and Waste Separation

Recycling has made little headway in New York State.[8] Relatively few large-scale recycling programs have been launched; most existing programs are voluntary. Even where recycling programs have been put in place, they have achieved only token reductions in the waste stream. In New York City, for example, municipally sponsored recycling programs have resulted in only a 2.2% reduction of the roughly 27,000 tons of garbage disposed of every day in landfills and incinerators.[9] Over 90% of these gains are attributable to bottle and can returns under the state's beverage container law.

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[8] We use the term "recycling" in this report to mean both the separation of recyclable materials from the waste stream and the actual recycling of these materials for reuse.

Only through mandatory programs can the state turn recycling into an effective weapon in New York's solid waste management arsenal. We use "mandatory recycling" in a comprehensive sense: it means a requirement that waste separation programs be established in all communities, that citizens participate in such programs, and that localities recycle materials they have collected. Where comprehensive mandatory programs are in place, the results can be dramatic. One upstate New York community, the town of Hamburg (Erie County), boosted citizen participation in its recycling program to 98%, after switching to a well-enforced mandatory program; the program is now diverting 25% of the waste stream by weight, a 34% savings in landfill space.[10]

Neighboring states have already recognized the benefits of the mandatory approach. New Jersey, Connecticut, and Rhode Island all have adopted mandatory recycling legislation that will require most residents to separate recyclables from their trash.[11] Similar legislation is expected to pass soon in Pennsylvania.[12] The New Jersey Law requires each county to designate leaves and three other materials to be separated from the waste stream and to achieve at least a 35% recycling rate within three years. The Connecticut legislation sets a 1991 recycling goal of 25%, requires the state environmental agency to designate recyclable materials to be separated and collected, and forbids the disposal of designated recyclables at any landfill or incinerator after January 1991.[13]

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[9] City of New York, Department of Sanitation, White Paper, "New York City Recycling Strategy" (January 1988) at 7-11, 46; see also City of New York, Department of Sanitation, "A Status Report on Materials Recycling Activities in New York City" (December 1985) at 26.

This recycling figure does not include an unspecified amount of material that is collected, processed and recycled by the private sector.

[10] Environmental Defense Fund, Coming Full Circle: Successful Recycling Today (1988) at 50.

Experience confirms what common sense suggests: recycling levels will be higher if municipalities undertake waste separation programs and if participation is mandatory.[14] As the New York City Department of Sanitation has recently stated,

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[11] 1987 N.J. Sess. Law Ch. 102, codified at N.J. Stat §13:1E; 1987 Conn. Pub. Act No. 87-544, Section 1, codified at Conn. Gen. Stat. Tit. 22a, ch. 446d; R.I. Gen. Laws chs. 23-18.8, -18.9, -19.

[12] S. 528, Session of 1987, The General Assembly of Pennsylvania. Slightly different bills with the same objective recently passed the Maryland House and Senate. Mandatory recycling legislation is also pending in the New York City Council (Intro 952, December 8, 1987).

[13] Other states have adopted legislation that does not mandate individual participation, but does require municipalities to provide their residents with the opportunity to recycle. See Oregon Recycling Opportunity Act, Or. Rev. Stat. Ch. 459 (every city with over 4,000 residents must provide curbside collection of recyclables; drop-off centers must be located at all disposal sites or more convenient locations); Wisc. Stat. Ann. §144.796 (all disposal facilities must provide a recycling collection center); Wash. Admin. Code 173-304-440(2)(f), 460(4)(f) (same).

[14] See C.L. Pettit, "Trends in Collecting Recyclables," Waste Age (July 1986) at 52-53.

"Mandatory participation is necessary to ensure the highest level of participation for Department programs and lowest per-ton cost of collection."[15]

The three legislative proposals now under consideration in Albany address the mandatory recycling issue only in part. Both the Governor's and Assembly's bills would require all communities to enact local laws by the early 1990's mandating the separation of recyclable materials from waste disposed of in municipal landfills or incinerators.[16] But neither specifies any numerical recycling rates to be attained in each region. And the Senate's proposal contains no requirement at all for mandatory recycling by households or businesses.[17]

Recommendation #1:

> The Governor should propose and the State Legislature should enact a law establishing a statewide mandatory recycling program for all residential, commercial and institutional sources of solid waste.
>
> The mandatory recycling law should:
>
> 1) set a numerical goal, or series of goals to be phased in over several years, for

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15. "New York City Recycling Strategy," supra note 9 at 16 (emphasis in original).

16. The Governor's proposal would allow municipalities until December 1991 to comply with the statute, except New York City, which would have until December 1993. The Assembly version would require action by all localities, including New York City, by September 1991. Cities and towns could be exempt from these requirements in both bills under certain circumstances.

17. Appropriately, all three bills would require source separation of wastepaper and other materials in state facilities and agencies.

recycling a fixed percentage of solid waste generated by each locality. (This target should be consistent with the DEC goal of recycling approximately 40% by 1997.);

2) direct localities to require citizens to separate at least three materials such as newspapers, glass bottles and aluminum cans (but excluding yard wastes and organic matter, which are the subject of recommendation #2, below) from the waste stream, and require municipalities to insure that the collection system in place for regular trash disposal will also provide adequate service for the collection of recyclables; and

3) require all counties or municipalities to prepare and submit to DEC comprehensive plans detailing their program for the collection and marketing of the materials they intend to recycle.

B. Direct Localities to Compost Yard And Kitchen Wastes

Yard and kitchen wastes present a major new target for recycling programs in New York State. Composting these wastes, which include everything from leaves to food scraps, offers potentially significant benefits on two fronts. First, it could take a dramatic bite out of solid waste volumes -- removal of compostable yard wastes alone could yield up to a 20% reduction in the state's solid waste stream.[18] Second, elimination of these high-moisture materials from refuse that might otherwise be sent to incinerators would reduce emissions of nitrogen oxides and help insure more efficient combustion, thus reducing emissions of toxic dioxins and furans and the generation of incinerator ash.

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[18] New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 3-6.

The technology for composting is simple and readily available. Yard wastes can easily be kept separate from household garbage and composted into fertilizer and other soil materials.[19] These techniques are well advanced in Western Europe.[20] And in the United States, more than 20 states have announced plans to develop or expand composting programs for leaves, tree-trimmings and other organic matter.[21] Some jurisdictions, including the state of New Jersey and Broome County, New York, have already banned the disposal of leaves with household garbage.[22]

Of the pending legislative proposals, only the Governor's bill would require localities to compost leaves and yard wastes, making it a condition for operating any new or expanded landfill or incinerator. Under this provision, however, composting would only be required in communities that would be served by these new facilities.

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19. Municipalities should be aware that pesticides or other toxins may be present in grass clippings, possibly requiring separate handling or treatment of these materials.

20. Cynthia Pollock, "Mining Urban Wastes: The Potential for Recycling," Worldwatch Paper 76 (1987) at 23-25.

21. "New Emphasis On Yard Waste," BioCycle (September 1987) at 42-43; see also Nora Goldstein, "Solid Waste Composting Picks Up Steam," BioCycle (October 1987) at 27-30.

22. 1987 N.J. Laws, Ch. 102, §13(a), (b); BioCycle (October 1986) at 16. See also Portland (Oregon) Solid Waste Reduction Program Work Plan (April 1986) (ban on landfilling of yard wastes effective in 1989) at 17.

Recommendation #2:

The Governor and State Legislature, through executive action or new legislation, should:

1) require all municipalities to establish programs for the collection, processing and marketing of yard wastes from all households and businesses;

2) prohibit the disposal of yard wastes at municipal landfills and garbage burning incinerators; and

3) direct municipalities to establish programs for the composting of food wastes. As a first step, such programs should provide for the composting of food wastes from restaurants and retail food distributors and markets, and establish demonstration programs for the composting of household food wastes.

C. Reduce Overpackaging And Limit The Use Of Non-Recyclable Materials

Any serious program to address the solid waste disposal dilemma in New York must confront the problem of overpackaging and the widespread use of nonrecyclable materials in consumer and commercial products. Packaging of food and consumer products is one of the fastest growing components of the state's solid waste stream. Package-related material now makes up roughly one-third of New York's total solid waste load.[23] In this state, the amount of packaging waste generated has doubled over the past 30 years and is expected to grow another 25% by 1997.[24]

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[23] New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 2-11.

[24] "Mining Urban Wastes," supra note 20 at 10; New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 7-5.

Unfortunately, packaging material, which has often served as a convenience to consumers and as a marketing tool, has become an albatross for local officials not only because of its quantity, but also because much of it is composed of non-recyclable materials. Plastics, for instance, which make up a sizeable portion of these wastes, are infrequently recycled, in part because of comparatively inferior economics of plastic collection and transport. Beverage containers made of several different materials (e.g., cans of aluminum and steel, aluminum and plastic, or different types of plastic) are extremely difficult to reprocess. As a result, packaging wastes often end up in landfills or incinerators where they present environmental problems.[25]

Some states and localities have been reluctant to regulate packaging, arguing that it is a task for the federal government. Yet state or local standards, although geographically limited, would still reduce the amount of unsound packaging. Moreover, movement at the state or local level would help spur action by the federal government.[26]

The problem of nonrecyclable materials, moreover, is not confined to packaging. Other non-recyclable products include disposable plates, plastic eating utensils, and cameras; non-refillable lighters and pens; and non-durable (or non-reparable) consumer products such as small electric appliances that are often cheaper to throw away and replace than to repair.

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[25] For example, in 1985 two-thirds of all plastic containers returned under the state's bottle bill were simply landfilled, reflecting the dearth of recycling options for these materials. "Mining Urban Wastes," supra note 20 at 27.

[26] The recent adoption of national appliance efficiency standards, for example, was the direct result of the adoption of requirements by a handful of states, including New York.

Several communities are now moving to restrict the use of certain packaging and non-recyclable materials within their jurisdictions. In Suffolk County, New York and Berkeley, California, lawmakers are considering bans on certain types of packaging and plastic food-related products.[27] And in the New York City Council, several measures have been introduced that would discourage or restrict the use of disposable plates and utensils in restaurants, polystyrene foam food packaging, and nonrecyclable packaging materials.[28]

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27. Berkeley City Council, Subcommittee on Plastics, Summary of Recommendations, Report to the Solid Waste Management Commission, January 20, 1988; County of Suffolk, Intro. Res. No. 1869-87, Resolution "To Simplify Solid Waste Management By Requiring Certain Uniform Packaging Processes Within the County of Suffolk," March 8, 1988. The Suffolk bill was approved by the County Legislature on March 29, 1988; it awaits final action by the Suffolk County Executive. "Suffolk Votes A Bill to Ban Plastic Bags," The New York Times (March 30, 1988) at B-1.

28. See The New York City Council, Intro 932 (prohibiting restaurants from providing disposable service articles for on-premises eating and drinking use) (November 5, 1987); Intro 978 (imposing a tax to promote recycling of containers and to reduce the cost of solid waste disposal) (January 21, 1988); Intro 979-A (prohibiting the use of polystyrene foam food packaging) (January 21, 1988); and Intro 991 (prohibiting packaging that is not recyclable or biodegradable) (February 9, 1988).

These issues have now gained the attention of New York State's lawmakers.[29] The centerpiece of the Assembly bill, the most comprehensive of the three on this subject, is a three-cent tax on most non-food packaging in the state.[30] The Assembly bill would also give the DEC broad authority to prohibit or restrict the use of non-recyclable or non-recycled packaging materials where necessary. And it would ban the use of polyvinyl chloride (PVC) or polystyrene foam in all food packaging beginning in 1990. The Governor's legislative proposal calls only for a feasibility study of a labeling program that would inform consumers of the content and recyclability of particular packages. The Senate bill would simply create a waste reduction council to study existing packaging designs and identify minimization strategies.

Recommendation #3:

> The Governor and the State Legislature, as a first step in a long-term program to reduce overpackaging and limit the use of non-recyclables, should enact legislation that would:
>
> 1) establish a state packaging tax based on recycled content and recyclability of food and non-food packaging;

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[29] In fact, as far back as 1980 the legislature directed DEC to conduct an annual "analysis of the packaging portion of the waste stream to propose changes which will conserve energy and reduce solid waste generation." N.Y. Envtl. Conserv. Law §27-0103.2(c). The Department has largely ignored this mandate.

[30] Under this proposal, manufacturers would receive a one-cent credit if their packaging is recyclable, a two-cent credit if it is made from recycled materials, and a full exemption from the tax if their packaging material is both recyclable and recycled.

2) empower DEC to ban or limit the sale of certain non-recyclable or non-recycled packaging materials where environmentally less harmful alternatives exist;

3) ban the use of polyvinyl chloride (PVC) and polystyrene in all food packaging, effective in 1990;

4) direct DEC to establish labeling regulations that would inform the public of the content and recyclability of packaging of consumer products;

5) enact a sales tax on single-use, disposable products; and

6) establish a statewide waste reduction council to recommend ways of reducing excessive packaging, increasing product durability and limiting the use of disposable consumer products.

D. Remove Hazardous Materials From The Waste Stream

Hazardous waste problems are not limited to the disposal of industrial wastes. Individual households and small businesses regularly discard hazardous products, such as paints and varnishes, cleaning solvents, used motor oils, pesticide cans and batteries.[31] State and federal laws impose stringent handling, transportation, and disposal requirements for hazardous wastes generated in large amounts. But household and small generator hazardous materials usually end up at ordinary landfills (where they pose long-term threats to surface and groundwater supplies) or at incinerators (where they can produce harmful air contaminants and increase the toxicity of incinerator ash).[32]

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[31] Batteries used in consumer products, although not dangerous when used for their intended purposes, contain toxic metals; disposal of these products in landfills or incinerators could allow these toxic substances to be released into the environment.

Many hazardous household materials can effectively be removed from the solid waste stream. Pilot programs have been launched in as many as 41 states, including Massachusetts, Florida, California, and Minnesota, to recover and even recycle some of these wastes, primarily through collection programs and local drop-off centers.[33] Some states have also begun to require deposits on certain hazardous materials. Rhode Island, for example, recently placed a five dollar deposit on all automotive batteries sold in the state.[34] These kinds of programs offer a double advantage -- they can reduce the amount of wastes that must be disposed of at local solid waste facilities while helping to minimize the environmental and public health threats posed by burning or landfilling these products.

Pending state legislative proposals on this front are encouraging. The Governor's bill would direct all New York communities to institute programs for the removal of household hazardous waste and pesticides from the solid waste stream. Additionally, the bill calls on the New York State Energy Research and Development Authority to study the feasibility of constructing a state-run waste oil reprocessing facility, helping to alleviate a major small quantity hazardous waste disposal problem in New York. A similar feasibility study (with the Environmental Facilities Corporation as the lead agency) is provided for in the Assembly bill. The Assembly legislation would further require that retailers, distributors and manufacturers of household batteries accept these products for return; the proposal does not, however, indicate how these wastes should be handled. Additionally, the Assembly bill would levy a fifty cent tax on all tires sold in the state to fund grant and loan programs for tire resource recovery plants and a pilot rubberized-asphalt program. The Senate bill offers no proposals for dealing with household hazardous waste materials.[35]

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[32] In Japan, Sweden and Switzerland, in contrast, consumer batteries are collected and stored, while studies of ways to reuse or safely dispose of these products continue. See Garbage Management in Japan, supra note 3 at 56-60.

[33] "Household Hazardous Waste Collection Programs," Center for Environmental Management at Tufts University (October 28, 1987); see also Janis M. Adkins, "Household Waste Threatens Hauler and Landfill Safety," World Wastes (October 1987) at 38-39; and see U.S. Environmental Protection Agency, "A Survey of Household Hazardous Wastes and Related Collection Programs" (October 1986).

[34] Act of June 30, 1987, Ch. 325 §1 (to be codified at R.I. Gen. Law §§23-60-1 et seq.).

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35. Several additional bills now pending in the state legislature focus on hazardous materials in the waste stream. One piece of legislation (A.6076), backed by Assemblyman Hinchey, would require a 25¢ deposit on certain types of household batteries (e.g., watch and hearing-aid batteries). Further, Assemblyman Koppell and other legislators have introduced a bill (A.9655) that would create a 25¢ deposit for dry cell batteries (e.g., household) and a $5 deposit on wet cell batteries (e.g., automotive). Assemblyman Koppell is also prime sponsor of a bill (A.9654) that would set a deposit of at least $2 on all tires sold in the state.

Recommendation #4:

The Governor should propose and the State Legislature should enact legislation that:

1) requires all localities to establish household hazardous waste drop-off centers or other permanent collection programs for residents and small commercial establishments not covered under the state's hazardous waste management system;

2) designates the materials (e.g., waste oils, pesticide cans) to be collected under these programs;

3) provides for the safe recycling of these household materials, or their disposal or storage in accordance with stringent rules applicable to hazardous waste management;

4) creates a statewide deposit system for certain hazardous materials (e.g. automotive and household batteries) to further discourage the disposal of such products in landfills or incinerators; and

5) directs the Environmental Facilities Corporation or another authority to develop a plan for a state-sponsored waste oil reprocessing facility.

E. Strengthen The "Bottle Bill"

Returnable beverage container deposit laws have been one of the few solid waste initiatives that have made it into the statute books. Ten states, including New York, now require deposits on certain beverage containers. In New York, a five cent deposit on bottles and cans that contain beer or soda has cut the State's solid waste volume by 5% since 1983.[36]

New York State's bottle bill program, however, has been less than a total success. Return rates vary across the state, from 85-90% upstate to as low as 60% in New York City.[37] The problem in New York City has resulted in part from the unwillingness of some retail establishments to accept beverage container returns and a lack of third-party redemption centers. It also stems from the relatively low 5¢ deposit, which is often insufficient to induce bottle and can returns.

A second problem with the existing program is that it merely encourages the return of beverage containers. The statute would be more effective if it encouraged -- or even required -- the recycling or reuse of returned containers. Michigan's bottle bill program, for example, has set deposits of five cents on refillable containers and ten cent on nonrefillables to encourage the purchase of reusable bottles.[38]

Finally, New York's bottle bill program suffers from inconsistent enforcement and inadequate reporting. Too often, consumers in New York have been dissuaded from returning bottles and cans because of a reluctance or even outright refusal of some retail outlets to redeem these containers; existing enforcement measures have had only partial success. As for reporting problems, it has been difficult to assess industry claims as to its costs for handling bottle and can returns because of record-keeping and data collection deficiencies.

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[36] New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 3-4.

[37] "New York City Recycling Strategy," supra note 9 at 46.

[38] Mich. Comp. Laws §445.571 - 445.576.

Rectifying these problems could pave the way for ultimately broadening the bottle bill to cover additional containers. Other states are already moving in this direction. In Maine, wine coolers will be covered effective July 1, 1988.[39] Legislation pending in Vermont would broaden the categories of containers regulated under that state's bottle bill to include not only wine coolers, but also fruit and vegetable juices and iced tea bottles.[40]

To be sure, New York State officials have acknowledged the desirability of strengthening the existing bottle bill program. In DEC's recent update of its Solid Waste Management Plan, the Department proposed to increase deposits to ten cents on larger bottles and cans and to apply the deposit system to additional types of beverage containers.[41] Nevertheless, bottle bill reform proposals are not included in any of the three major solid waste bills now pending before the Legislature.[42] The one exception is an Assembly bill provision that would create a tax credit for breweries that expand their use of refillable beer bottles. What is needed now is Executive office and Legislative branch agreement to move bottle bill reform off the drawing board and into the statute books.

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[39] Me. Rev. Stat. tit. 32 §1862, subsection 1.

[40] H. 221, "An Act Relating to Increasing the Scope of the State's Returnable Bottle Law" (1987).

[41] New York State Solid Waste Management Plan 1987-1988 Update, *supra* note 2 at 8-4.

Recommendation #5:

> The Governor should propose and the State Legislature should act to amend the existing bottle bill by:
>
> 1) increasing the deposit to 10 cents for bottles and cans, except for refillable containers, which would remain at 5 cents;
>
> 2) requiring beverage manufacturers and distributors to file periodic reports, documenting their expenses for handling bottle and can returns and such other information regarding beverage container operations as the Commissioner may require;[43]
>
> 3) providing tax credits to in-state beer and wine bottlers who market their products in reuseable containers;

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[42] One noteworthy bill introduced in 1987 by Assemblymen Koppell and Hinchey (A.5654) proposes several changes in the existing bottle bill statute. It would raise bottle and can deposits to 10¢ (refillable containers would remain at 5¢); expand the law to cover wine coolers; strengthen enforcement mechanisms; increase the handling fee per container to 2¢; and allow the state to recover one-half of all unredeemed 10¢ deposits, with the remainder kept by beverage manufacturers and distributors.

[43] This information could be used to help determine what portion of the unredeemed deposit revenues should go to the state and what portion should be retained by beverage manufacturers and distributors.

4) strengthening the requirement that beverage distributors or manufacturers accept bottle and can returns from third-party redemption centers; and

5) providing for the ultimate expansion of the deposit system to cover other containers.

F. Increase Government Procurement Of Recycled Products

The most common objection to large-scale recycling is that existing markets will be unable to handle significant increases in secondary materials. State government has a key role to play in overcoming this obstacle to the extent it exists and debunking it to the extent it does not. Increased state procurement of recycled products is the most straightforward way of helping to stimulate recycling markets and reduce waste generated.

Some states have begun to set this process in motion. New Jersey, Connecticut, Vermont and Oregon are among a handful of states that are already planning aggressive efforts to encourage the use of recycled goods, such as paper, asphalt, and waste oils.[44] In New Jersey, a 1987 law obligates state agencies to meet numerical purchasing targets for recycled paper and paper products; this legislation also encourages the use of recycled compost materials in the maintenance of state lands.[45]

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[44] "State and Local Procurement of Recycled Products -- Programs Defined By Legislation As Of 8/87," prepared by Nancy VandenBerg, Markets for Recycled Products and Richard Keller, Maryland Energy Office.

[45] 1987 N.J. Laws Ch. 102, §17(a), 19(a); id. §15.

New York State, to its credit, has begun moving in the right direction. The state has instituted one of the nation's most successful paper procurement programs; as much as 60% of paper bought by the state in 1987 contained recycled fibers.[46] And the New York State and City Transportation Departments have recently begun the experimental use of recycled asphalt for some roadway repairs. Nonetheless, much more can be done in the procurement arena.

Pending New York legislation on procurement is stronger in spirit than substance. The bills proposed by the Governor and the Assembly would require all state agencies, not just the Department of General Services, to purchase recycled paper products whenever the quality was adequate and the price no more than 10% above that for virgin materials. Neither bill, however, requires state agencies to purchase recycled products other than paper. Nor do these bills mandate that a specific percentage of state agency purchases be composed of recycled products, where feasible.[47]

Recommendation #6:

> The Governor and Legislature should enact legislation to:
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> 1) expand the 10% price preference now in existence for only paper and paper products to include state purchases of

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[46] New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 8-5.

[47] The Senate bill proposes no changes in current state procurement practices.

other recycled materials (e.g., asphalt made from glass);

2) direct state agencies and public works contractors to purchase specified percentages of recycled goods, where available at no more than 10% above the cost of comparable products made from virgin materials; and

3) require the Office of General Services and other state purchasing agencies, after consultation with neighboring state authorities, to set specifications for what constitutes "recycled" materials.

G. Expand The State Role In Market Development And In Providing Technical Assistance For Waste Reduction And Recycling

Local governments cannot turn the promise of waste reduction and recycling into reality by themselves. Municipalities, for example, often lack the technical expertise to implement residential and commercial recycling programs or to design composting facilities, or to establish household toxic waste collection programs. And many communities are concerned that it will be difficult to market the recyclables they collect.

The state can greatly assist local efforts by easing these barriers.[48] For instance, it can act as a clearinghouse providing well-developed guidance on recycling technologies and existing markets. In the area of market development, some states, such as New Jersey, Oregon, Michigan and Minnesota have, through a combination of direct subsidies, low-interest loans, and tax incentives, already begun to expand private markets for recyclables in their jurisdictions.[49]

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[48] Indeed, since 1980 the Department of Environmental Conservation has been required to propose legislation aimed at expanding markets for recycled goods and encouraging state procurement efforts. N.Y. Envtl. Conserv. Law §27-0103.2(b). Additionally, the state is already directed to undertake "as a high priority item" an industrial development program to increase manufacturers' use of secondary materials. N.Y. Envtl. Conserv. Law §27-0401. In 1987, responsibility for this program was transferred to the state's Department of Commerce. N.Y. Laws of 1987, Chap. 615.

To address these issues, all three New York legislative proposals focus on expanding the state's role in facilitating waste reduction and recycling at the local level.[50] The Governor's bill would establish a state-run information clearinghouse in the Environmental Facilities Corporation to assist municipalities in, among other things, selling and purchasing recyclable goods. It would also direct the Department of Economic Development to provide loans and other financial assistance to industries making greater use of secondary materials. An additional provision in the Governor's legislation calls on the DEC to assist local governments in developing markets for recyclable materials.

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[49] Jim Glenn, "Developing Markets For Recyclables," BioCycle (February 1988) at 26-28. New Jersey, for example, recently adopted a 50% investment tax credit for equipment used in processing recyclable materials. 1987 N.J. Laws Ch. 102, §42.

[50] To some extent, legislative authority in some of these areas already exists. See, for example, N.Y. Envtl. Conserv. Law §§27-0405 (requiring the Department to design and implement a local resource reuse and development program that would promote the collection, processing and marketing of materials now being disposed of as solid waste); 27-0509 (requiring the Department to provide technical recycling assistance to municipalities and other interested parties).

Comparable to the Governor's bill, the Assembly proposal would establish an Office of Waste Reduction and Recycling in the State Environmental Facilities Corporation to help communities gain access to information on available scrap dealers and markets, on new recycling technologies, and on potential source reduction strategies for local businesses. This bill also would grant manufacturers a five dollar tax credit for every ton of secondary material (e.g., paper, green glass, polyethylene terephthalate (PET), or high-density polyethylene (HDPE)) above that used in the previous year.

The Senate's bill directs the Department of Economic Development to expand and develop markets for secondary goods, as well as promote greater use of these materials by state industries. This legislation also requires the Department to implement a waste audit program for industries seeking to reduce their generation of solid waste.

Recommendation #7:

The Governor should propose and the State Legislature should enact new proposals that, at a minimum:

1) create a state Office of Waste Reduction and Recycling within the Environmental Facilities Corporation to provide technical assistance to localities;

2) provide tax incentives (e.g., investment tax credits or secondary materials use credits) for private recycling contractors and those industries utilizing secondary materials;

3) make available low-interest loans or subsidies for the state's existing

recycling industries, for conversion of other industrial plants to recycling processes, and for out-of-state recycling businesses seeking to locate in New York; and

4) commission a state study to analyze market development strategies for specific recyclable materials, and to investigate options for manufacturing products that are less toxic, more durable or more recyclable.

H. Increase State Funding For Local Waste Reduction And Recycling Programs

The State, rather than localities, is better equipped to generate the capital necessary for launching comprehensive waste reduction and recycling programs in New York. The legislature has broad authority to enact taxing and funding programs. And it makes political sense, as the State moves forward to encourage recycling and waste reduction, that it share with localities the costs of implementation.

New York State funding for solid waste management projects has historically been skewed toward incineration. More than $215 million from the 1972 State Environmental Quality Bond Act, for example, have been allocated for incinerator construction.[51] Less than a million Bond Act dollars have been spent on recycling.[52] State officials should move swiftly to redress the imbalance that these figures exemplify.

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[51] New York State Solid Waste Management Plan, 1987-1988 Update, supra note 2 at Table 3-4.

Fortunately, current legislative initiatives have been designed to turn the situation around. Both the Governor's and Assembly's bills target untapped sources of state funding for local recycling and waste reduction efforts. Under the Governor's proposal, the state would collect roughly $60 million in unclaimed nickel deposits generated annually by the bottle bill program. (The amount of these deposits, which are presently retained by beverage distributors or manufacturers, may vary in future years depending on redemption rates.) Additionally, some funds from the Governor's proposed $3 to $5-a-ton tipping fee increase at municipal landfills and incinerators might also be available for this purpose.[53]

The Assembly bill proposes to raise the bulk of its recycling monies through a state packaging tax, which could generate an estimated $80 to $100 million annually. It also proposes to channel additional funds into waste reduction and recycling programs from an increased tipping fee, equalling $5-a-ton, to be levied on all waste haulers using municipal disposal facilities. The Senate bill contains no new mechanisms for securing funds exclusively for recycling and waste reduction programs. It would, however, provide outright grants of up to 50% for the costs of building or retrofitting all solid waste facilities.

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[52] Id., Table 3-2. Thus, not even the 5 million Bond Act dollars that the statute specifically earmarked for recycling has been used for that purpose. N.Y. Envtl. Conserv. Law §51-0901. See also §51-0905.4 (in annual reviews of appropriations, "[p]rimary consideration shall be given to the reallocation of funds to meet the requirements of section 51-0901 of this title relative to small scale, low-technology approaches").

[53] Under the Governor's proposal, most of the tipping fee revenues would be used for local landfill closures.

Recommendation #8:

> The Governor should propose and the Legislative should enact legislation providing grants of at least $50 million a year for local waste reduction and recycling programs, with funds to be drawn from:
>
> 1) recapture of unclaimed beverage container deposits (as part of an amended returnable container law);
>
> 2) a state packaging tax;
>
> 3) increased tipping fees at municipal landfills and incinerators;
>
> 4) issuance of industrial development bonds for capital investments for recycling programs; and
>
> 5) general tax revenues.

II. AIR POLLUTION FROM INCINERATORS

New York State is out in front in the nationwide incineration stampede. Seven waste-to-energy incinerators are already operating across the state, six are under construction, and twenty-two are in various planning stages.[54]

Unfortunately, the race to incinerate has gone ahead in the absence of large-scale recycling and without a comprehensive regulatory framework governing the environmental and public health impacts of this technology. New York State has not yet promulgated binding regulations establishing such basic incinerator parameters as air pollution emissions standards, operator training and pollution monitoring specifications and ash disposal requirements. Nor has the federal government. To be sure, plans for several New York incinerators include fabric filters and scrubbers, pollution control equipment that is indispensable to reducing airborne contaminants.[55] But more, much more, is needed to minimize the risks from what, if constructed, will be the most significant new air pollution sources in New York State over the next decade.

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[54] New York State Solid Waste Management Plan 1987-1988 Update, supra note 2 at 2-16. In addition to these waste-to-energy incinerators, four older municipal waste incinerators are operating in New York State (three in New York City; one in Huntington), as are approximately 4,500 smaller apartment house and institutional incinerators, 18 sewage sludge incinerators, and roughly 300 hospital or medical waste incinerators. Id. at 2-19, 2-20. See also "New York - A Leader In Resource Recovery," Resource Recovery Report (May 1987) at 3.

[55] California Air Resources Board, Air Pollution Control At Resource Recovery Facilities (May 1984) at 3.

In the following sections we outline some of the minimum requirements that should be incorporated into binding state rules to reduce incinerator-generated air pollutants. The following proposals are not intended to be comprehensive, but to highlight key aspects of an appropriate regulatory scheme.[56]

A. Particulate Matter

1. Tighten Emission Standards for Incinerator Particulates

The incineration of municipal refuse produces a significant quantity of particulate matter. This pollution is the product of incomplete combustion or the entrainment of noncombustibles in the flue gas stream. Particulate matter may exist in solid form or liquid droplets. It ranges in size from more than 500 microns to less than 0.1 micron in size. (One micron equals 1/25,000 of an inch.)[57]

The emission of particulate matter poses a variety of public health problems. Smaller fine particles can penetrate the body's natural defense mechanisms and lodge in the deepest, most sensitive parts of the lung. Additionally, heavy metals, including arsenic, cadmium, lead and mercury, released from garbage incineration are borne mainly on these fine particles.[58]

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[56] We also recommend that existing incinerators be retrofitted, if necessary, to meet the standards we propose below for new facilities. See pages 69-71.

[57] CARB Report, supra note 55 at 148.

[58] Floyd Hasselriis, Technical Guidance Relative to Municipal Waste Incineration (prepared for the New York State Department of Environmental Conservation) (August 1985) at 29.

Toxic organic compounds, including dioxins and furans, are also known to adhere to particulate matter discharged from garbage burning incinerators.

State-of-the-art particulate matter controls can reduce emissions of these dangerous pollutants considerably. Heavy metal emissions can be greatly reduced through the use of fabric filtration particulate controls in combination with flue gas scrubbing. Even higher removal efficiencies may be achieved if stack gas temperatures are lowered before the pollutants reach the fabric filters.[59] Moreover, a growing body of validated data suggests that controlling particulate emissions by a combination of fabric filters and scrubbers can also help reduce emissions of dioxins and furans.[60]

DEC's June 1986 draft guidelines proposed a statewide incinerator particulate standard of 0.02 grains per dry standard cubic foot of exhaust gas (gr/dscf), corrected to 12% carbon dioxide. But particulate control technology for controlling

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59. Marjorie J. Clarke, "Minimizing Emissions From Resource Recovery," presented at Environment Canada's International Workshop on Municipal Waste Incineration, Montreal, Quebec (October 1-2, 1987) at 29-31. See also Hasselriis, note 58 at 22; and see Environment Canada, "The National Incinerator Testing and Evaluation Program: Air Pollution Control Technology" ("NITEP Report") (September 1986) at 71.

60. See, for example, U.S. Environmental Protection Agency, Municipal Waste Combustion Study: Report to Congress (June 1987) at 61-62. New York State Legislative Commission on Solid Waste Management, "Resource Recovery and Solid Waste Management in Norway, Sweden, Denmark and Germany: Lessons for New York" (Dec. 1985) at 5. See also, J.L. Hahn, et al., "Air Emissions Testing at the Wurzburg, West Germany Waste to Energy Facility" (American Society of Mechanical Engineers) June 1986. And see Clarke, supra note 59 at 27-28.

garbage incinerators is advancing rapidly, and the Department's proposed standard does not represent the current state of the art. Nor does it encourage better levels of control than those now easily achieved.

States around the nation are adopting standards more stringent than that proposed in DEC's June 1986 draft. California, New Jersey, and Pennsylvania, for example, have all established particulate requirements or guidelines of 0.015 gr/dscf, or lower. Recently issued incinerator permits in Maine, California, Illinois and Virginia limit particulate emissions to 0.01 grains.[61] And California has recommended a special, lower standard for the smallest particles (less than 2 microns) of 0.008 gr/dscf.[62]

Actual data from more than 20 existing incinerators have confirmed that particulate emission rates considerably lower than that proposed by DEC are in fact achievable. The Framingham, Massachusetts facility, for example, has recorded particulate levels of 0.007 gr/dscf.[63] The Commerce (California) Energy Authority has monitored particulate emissions at its incinerator

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61. Maine Department of Environmental Protection, Air Emission License Issued to Regional Waste System, Inc., Portland, Maine (February 12, 1986) at 31; County of San Diego Air Pollution Control District, Authority to Construct the San Marcos North County Resource Recovery Center (November 30, 1984) at 5; Illinois Environmental Protection Agency, Construction Permit Issued to Kirby-Coffman, Inc. (October 1, 1987) at 2; Virginia State Air Pollution Control Board, Permit for the Fairfax County Facility (January 12, 1987) at 2.

62. CARB Report, supra note 55, at 32.

63. Hasselriis, supra note 58, at 21.

of 0.0043 gr/dscf.[64] Monitoring at the Wurzburg, Germany incinerator revealed consistent particulate emissions levels of approximately 0.004 gr/dscf.[65] Particulate monitoring at the North Andover, Massachusetts incinerator recorded levels of 0.005 gr/dscf.[66] And recent data from the Rutland, Vermont plant revealed particulate readings of 0.003 gr/dscf.[67] Twelve of thirteen incinerators with fabric filter controls, whose data were examined in one recent analysis, met a 0.010 gr/dscf standard.[68]

Recommendation #9:

> The Department final incinerator rules should include a particulate emission standard no higher than 0.010 gr/dscf.[69]

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[64] Edwin Wheless, "Air Emissions Testing at the Commerce Refuse to Energy Facility, County Sanitation Districts of Los Angeles County" (September 1987).

[65] J.L. Hahn *et al.*, *supra* note 60 at 1.

[66] M. Clarke, INFORM, "Partial Listing of Particulate Control Equipment Applications to MSW Incinerators -- 1970-1988" (March 1988).

[67] *Id.*

[68] *Id.*

[69] This and all other proposed emission limits set out below are technology-based. Such limits are necessary but do not obviate the need for a site-specific analysis of the health risks and overall impacts of any proposed garbage burning facility.

2. Mandate a Stricter Limit on the Opacity of Incinerator Emissions

Opacity is a visual measure of an incinerator's atmospheric discharge.[70] The opacity, or shade, of an incinerator plume is a useful indicator of incinerator operation generally and especially of particulate emissions. It is the only particulate indicator that can be measured continuously.

The Department's June 1986 proposal suggested that no new garbage burning incinerator be allowed to emit smoke the shade of which is greater than 10% opacity, except for up to 6 minutes per hour during which time the opacity could not equal or exceed 20%. Both the basic 10% limit and the 6-minute exception are too lax.

The six minute per hour, 20% "blow out" exemption is based upon obsolete design concepts, has no correlation with best available control technology emissions limits for particulates, and is wholly unnecessary. If a garbage burning incinerator were emitting pollutants at 20% opacity, it would be violating existing particulate standards in New Jersey and Connecticut and standards recommended in this report for adoption by New York State. Even at 10% opacity, an incinerator would most probably be exceeding a 0.01 particulate limitation by a considerable amount.[71] If the opacity cap is to insure proper operation and maintenance of the pollution control equipment, it should correspond to the maximum allowable particulate limitation, subject to the capabilities of the measuring technology.[72] New monitoring techniques allow for opacity monitoring at levels well below 10%.[73]

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[70] Calvin R. Brunner, Hazardous Air Emissions From Incineration (1985) at 22.

[71] Hasselriis, *supra* note 58 at 29.

Recommendation #10:

> The Department's final incinerator regulations should: (1) limit opacity to not more than 5% at all times; and (2) eliminate the proposed six-minute per hour exemption.

B. Dioxins And Furans

Dioxins and furans are highly toxic chemical compounds that are produced as by-products of incineration and other combustion processes. There are 75 dioxin and 135 furan compounds, of which a number of congeners are considered to be toxic at some level. All are composed of different, but structurally related, combinations of phenols, benzene, chlorine and oxygen. Dioxin has been called "one of the most perplexing and potentially dangerous chemicals ever to pollute the environment."[74] A number of these compounds are widely regarded as potent animal carcinogens and suspected human carcinogens.[75]

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[72] See U.S. Environmental Protection Agency, Opacity Provisions -- Background Information for Promulgated Amendments (December 1985) at 2-34, 2-35. According to the Arthur D. Little consulting firm, which participated in a recent incinerator permit review in Portland, Maine, particulate emissions of 0.010 gr/dscf are correlated with opacity levels of 1-2%. Therefore, for opacity limits to act as a useful indicator of incinerator problems and particulate limit violations, opacity limits should be set at no higher than 5%. See Portland, Maine permit, supra note 61 at 7.

[73] According to Charlene Williams, Facility Administrator of the Ogden-Martin incinerator in Marion County, Oregon, the dual pass microprocessor-based Lear Siegler, Inc. RM4200 opacity monitoring equipment in place at that facility (with the accompanying Lear Siegler Unicon 700 Control Unit) consistently records levels below 1% opacity. Actual readings during two recent days were, for example, 0.4%, 0.6% and 1.6%. Recorded opacity levels at the incinerator rarely approach 5%, according to Ms. Williams. Source: Telephone conversations between William W. Buzbee, Natural Resources Defense Council, and Charlene Williams, February 3 and March 23, 1988.

Two other companies -- Dynatron, Inc. and Thermo Environmental, Inc. -- also claim to produce equipment capable of measuring incinerator emissions accurately at levels below 5% opacity. All three manufacturers acknowledge a 1-2% possible range of error.

Well-operated, modern incinerators with state-of-the-art pollution controls and comprehensive monitoring can minimize dioxin emissions and reduce potential risks to public health. But major uncertainties remain. The formation and destruction of organic compounds during incineration is complex and not completely understood at this time.[76] High combustion efficiencies can significantly reduce, but do not eliminate, dioxin and furan emissions. Due in part to the heterogeneity of solid waste, absolute control over furnace conditions at all

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74. Statement of former EPA Deputy Administrator Al Alm, Bureau of National Affairs, "Dioxin: EPA Earmarks $8 Million For Finding, Handling 50 Priority Contaminated Sites," Chemical Regulation Reporter (December 23, 1983) at 1358.

75. As two New Jersey Department of Environmental Protection engineers have reported: "Dioxin is perhaps the most poisonous synthetic chemical." Morton R. Friedman and John Weckesser, "Dioxin and Resource Recovery," The Environmental Forum (September 1983) at 44, 45.

76. Science Advisory Board, U.S. Environmental Protection Agency, Draft Report, "Evaluation of Scientific Issues Related to Municipal Waste Combusting" (February 1988) ("Science Advisory Board Waste Combustion Draft Report") at 43.

times has not yet been demonstrated in municipal garbage burning incinerators.[77]

Under these circumstances, numerical dioxin emission limits are necessary. No other measure can assure the public that actual dioxin emissions will, in fact, meet the levels being promised by incinerator advocates. The Swedish Environmental Protection Board has established guidelines for dioxin emission limits from garbage burning incinerators.[78] These guidelines, based on actual sampling of emissions, set forth a target value of 0.5 to 2 nanograms per normal cubic meter dry gas at 10% CO_2 for dioxin emissions from existing plants (given as 2,3,7,8 TCDD equivalents according to the Eadon model) and 0.1 nanograms per normal cubic meter for new incinerators.[79]

Evidence from existing incinerators suggests that the Swedish limitations can be met by well operated, state-of-the-art garbage burning incinerators. Recent testing at the incinerators in Malmo, Stockholm and Linkoping, Sweden, for example, show dioxin emissions of less than 0.1 ng/Nm^3.[80] Even lower levels were achieved at a pilot plant in Quebec City, Canada.[81] And at the Marion County, Oregon incinerator, a level of 0.155 (Eadon) was recorded.[82]

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[77] See Jack D. Lauber, "An Overview of The Burning Issues of Municipal and Hospital Waste Incineration," presented at the University of Florida, Gainesville, Interdisciplinary Conference on Strategies for the Comprehensive Management of Domestic, Municipal and Hazardous Wastes (March 1, 1986) at 4; see also Clarke, supra note 59 at 11.

[78] Office of Science and Technology, Swedish Embassy, "Environmental Requirements for Refuse Firing" (June 1986).

[79] Id. See also, Denmark Environmental Department, "Guide About Limits of Pollution From Garbage Burning Plants" (May 1, 1986) (PCDD and PCDF emissions, annual average not to exceed 1 ng 2,3,7,8 TCDD equivalent).

The Department's June 1986 proposed incinerator rules, however, make no provision for a dioxin emissions standard. A more glaring deficiency would be hard to find.

Recommendation #11:

> The Department's final regulations should establish incinerator emissions standards for total dioxins and furans equivalent to the Swedish guideline of 0.1 nanograms per normal cubic meter at 10% CO_2 (Eadon equivalents) for new facilities and 0.5 to 2 for existing facilities.

C. Acid Gases

1. Tighten Incinerator Emissions Limits for Sulfur Dioxide and Hydrogen Chloride

Incineration of municipal solid waste produces significant quantities of sulfur dioxide and hydrogen chloride. These pollutants can damage human respiratory and cardiovascular systems,[83] and contribute to the formation of acid rain. Without acid gas controls, garbage burning incinerators could emit five times more sulfur dioxide than low-sulfur oil burners of equivalent energy output.[84] Acid gas emissions from existing and planned garbage burning incinerators alone, unless controlled, could increase total statewide airborne acid gas emissions by 3% at a time when the state is seeking to substantially cut acid deposition levels.[85]

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[80] Olle Ashlander, "The Swedish Dioxin Moratorium," ASCE Dioxin Symposium, New York City (February 10, 1987).

[81] NITEP Report, supra note 59 at 44.

[82] Ronald Zurlinden, Henry Von Dem Fang, Jeffrey Hahn, Environmental Test Report Regarding Marion County Solid Waste-To-Energy Facility (November 21, 1986) at 6.

[83] See, e.g., U.S. Environmental Protection Agency, "Air Quality Criteria for Particulate Matter and Sulfur Oxides" (December 1982) at 1-72.

DEC's June 1986 proposal would require, as an eight hour average, a 90% hydrogen chloride reduction, or emissions of 50 ppm HCl by volume, whichever is less restrictive.[86]

The state's proposal has two weaknesses. First, although the HCl limit is appropriate, the averaging time is excessive. New Jersey's standard, for example, is based on a 3-hour averaging period; other jurisdictions have also adopted more stringent (i.e., shorter) averaging periods than the New York proposal.[87]

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[84] Connecticut Department of Environmental Protection, "Proposed Air Pollution Control Guidelines for Resource Recovery Facilities and Incinerators," August 28, 1984 at 15.

[85] Michael Oppenheimer, Environmental Defense Fund, "The Case For Acid Gas Control On Proposed Resource Recovery Plants In New York City: A Preliminary Analysis" (June 1, 1984).

[86] This is not the most stringent HCl mandate in the region. Pennsylvania, for example, has adopted a Best Available Control Technology requirement of 30 ppm as a 1-hour average. Pennsylvania Department of Natural Resources, Best Available Technology Requirements (November 9, 1987), Requirement A.2. See also 6 N.Y.C.R.R. §373-2.15(d)(2) (requiring 99% HCl removal for hazardous waste incinerators in New York).

[87] See, for example, Erie (Pennsylvania) Energy Recovery Permit, February 1987 (30 ppm, 1-hour average, or 90% reduction).

The more fundamental weakness in the current proposal is the failure to set a limit for sulfur dioxide.[88] Since the HCl limit will in effect require the use of scrubbers (which in turn will control sulfur dioxide), the Department apparently views HCl as a sulfur dioxide proxy. This rationale is defective. There is not necessarily a direct and consistent correlation between HCl and SO_2 emissions.[89] Moreover, a separate sulfur dioxide standard is required by state and federal law.[90]

Recommendation #12:

> The Department's final rules should include: (1) an averaging period no greater than three hours for the 50 ppm HCl emissions limit; and (2) an SO_2 emissions limit of 50 ppm, with a 3-hour averaging period.

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[88] This approach is especially odd since the state's proposal calls for continuous monitoring of SO_2 but not necessarily HCl; it would be strange to limit one and monitor the other.

[89] Although these two substances are controlled by the same mechanism (i.e., acid gas scrubbers), actual emissions are a product not only of the level of control, but of the sulfur and chlorine content of the waste, which are in no way related. E.g., Walter Niessen, "Resource Recovery: Air Pollution Emission and Control," in William D. Robinson, ed., The Solid Waste Handbook (1986) at 608-609, 618.

[90] The state ECL specifically states that the operating requirements "shall include appropriate levels of control for acid gas [and] sulfur dioxide." N.Y. Envtl. Conserv. Law §19-0306.2.c. Moreover, in exercising its delegated authority under the federal Clean Air Act, DEC will in any event have to include an emissions limit for sulfur dioxide in any incinerator permit it issues. 42 U.S.C. §§7476, 7503.

2. Establish an Incinerator Emission Standard for Oxides of Nitrogen (NO_x)

Oxides of nitrogen are widespread pollutants formed during combustion, including garbage incineration. Nitric oxide (NO) is a precursor of nitrogen dioxide (a yellowish-brown gas that significantly affects visibility), photochemical smog (ozone) and nitrates (which contribute to particulate matter and acid precipitation). Oxides of nitrogen at levels above national health standards interfere with pulmonary function, increase susceptibility to viral infections, irritate the lungs and cause bronchitis and pneumonia.

Potential emissions oxides of nitrogen from garbage burning facilities are quite high. New York City projects, for example, that its proposed Brooklyn Navy Yard incinerator will emit close to 3,000 tons a year of nitrogen dioxide -- nearly 10 tons a day.[91] Emissions of oxides of nitrogen from all sources in New York were estimated in the State's 1982 clean air plan at just under 200,000 tons annually.[92] New York State monitoring data show New York City nitrogen dioxide (NO_2) levels to be just under the federal health standard.[93] And violations of the national standard for ozone (for which NO_2 is a precursor) occur regularly throughout the New York metropolitan region. Thus, NO_2 reductions can help achieve the national health standard for ozone in New York.[94] Additionally, total NO_x emissions from New York City's five proposed incinerators could, according to DEC, have a "statistically significant" adverse effect in Suffolk County, an area whose existing deposition problem has made it one of the state's acid sensitive regions.[95]

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[91] New York City Department of Sanitation, Final Environmental Impact Statement on Proposed Resource Recovery Facility at the Brooklyn Navy Yard (June 1985) at D2-4.

[92] Unless controlled, the five incinerators proposed for New York City alone would generate close to 15,000 tons of NO_x a year, approaching 1/10th of the total statewide NO_x emissions level of 1982, the most recent year for which complete data are available.

The Department's proposed incinerator rules are silent on the question of emissions standards for oxides of nitrogen.[96] In contrast, several other states have established maximum NO_x emissions levels. The California Air Resources Board recommends an emissions limitation of 140-200 ppmv (at 12% CO_2). (It projects that this limit is roughly equivalent to the NO_x emissions rate from an industrial coal-fired burner, although higher than an oil-fired facility.)[97] Illinois recently established a 100 ppm limit for NO_x emissions from garbage burning incinerators.[98]

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[93] Two air quality monitors in Manhattan recorded annual NO_2 levels of 0.042 and 0.048 in calendar year 1986; the national ambient air quality standard for NO_2 is 0.05 ppm. See New York State Department of Environmental Conservation, "New York State Air Quality Report For Calendar Year 1986 From State and Local Air Monitoring Stations" at 42; 40 C.F.R. §50.11.

[94] CARB Report, supra note 55 at 75.

[95] New York State Department of Environmental Conservation NO_x program staff, oral presentation to Commissioner's Advisory Board on Operating Requirements for Municipal Solid Waste Incineration; see 1987 minutes of Advisory Board.

[96] The proposal is thus inconsistent with state law, which specifically requires the Department to set "appropriate levels of control for . . . oxides of nitrogen." N.Y. Envtl. Conserv. Law §19-0306.2.c.

Several alternatives are available for reducing NO_x emissions from incineration. Although keeping yard and food waste out of incinerators will be helpful, more is needed.[99] One option, selective non-catalytic reduction (or thermal $DeNO_x$), is achieving significant reductions at the Commerce, California incinerator,[100] as well as at Japanese facilities.[101] In this process, ammonia is injected into the flue gas, reducing NO_x to elemental nitrogen and water.[102] NO_x control efficiencies of up to 60% have been reported in tests of these systems.[103] And several project applicants for a Los Angeles garbage incinerator have proposed to use non-catalytic reduction at their facilities.[104]

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[97] CARB report, supra note 55 at 4, 28.

[98] See Illinois Kirby-Coffman permit, supra note 61. See also Portland, Maine permit, supra note 61 (100 ppm limit).

[99] CARB report, supra note 55 at 82.

[100] Test results have recorded NO_x emissions of 116 ppm at 3% O_2. E. Wheless, supra note 61 at 1, 8.

[101] David H. Minott, "An Overview of Alternative Technologies for Control of Air Pollutant Emissions from Waste To Energy Facilities" (November 25-26, 1985) at 7.

[102] Id.

[103] Id.; see also Garbage Management in Japan, supra note 3 at 98.

Recommendation #13:

> The Department's final incinerator rules should establish a NO_x emissions limit between 100 and 150 ppm.

D. Metals Emissions Limits

Municipal solid waste contains numerous metals, many of them toxic. Metals are not destroyed by incineration. Some portion collects in bottom ash or is captured by pollution control equipment; the remainder is discharged into the air.[105] For example, the final Environmental Impact Statement for New York City's proposed Brooklyn Navy Yard incinerator anticipates lead emissions of 14.5 tons per year, even with fabric filter and scrubber control devices. The incinerator, if built, would probably be the single largest source of lead emissions in New York City.

Despite the considerable risks posed by heavy metal emissions from incinerators, New York State has no regulations establishing incinerator emissions limits for these substances. Unfortunately, New York is not alone in failing to set emission limits for toxic metals. Few states have set emission caps in their regulations or permits on these toxins; where they have, the numbers have been unduly high. Too often, as is the case with the State's proposed metal emissions limits for the Brooklyn Navy Yard incinerator permit, metal limits have been based on test results from plants lacking scrubber and fabric filter controls.[106]

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[104] CARB report, supra note 55 at 28-29.

Flue gas recirculation, already in use in the Pittsfield, Massachusetts and Rutland, Vermont incinerators, also appears to control NO_x emissions. CARB Report, supra note 55 at 29-30. Preliminary data from Rutland indicates that NO_x entering the scrubber is approximately 90 to 100 ppm and 40 to 60 ppm exiting. Flue gas recirculation is a promising strategy since it also improves combustion efficiency.

[105] A recent Canadian study identified 27 heavy metals in waste incinerator emissions. NITEP Report, supra note 59 at 60.

Toxic metal emission limits should be based on emissions rates from state-of-the-art facilities. The proposals below are based on an estimate of what a well-run modern facility should achieve, as shown by actual test results of comparable plants in the United States and abroad. To be sure, further testing to determine with greater certainty final metals limits is needed. But in the meantime, as a first step in closing the current regulatory gap, statewide emissions standards should be set for four critical metals: lead, arsenic, mercury, and cadmium. These are among the most hazardous metal pollutants, and optimal control of these metals should help control emissions of other metals as well.

1. Lead

The health risks posed by lead exposure are well documented. Scientists have long known that high-dose lead contamination can result in abdominal pain, anemia, convulsions, paralysis and even death. In recent years, chronic low level lead exposures have been linked to learning disabilities, behavioral problems, hyperactivity and small but statistically significant reductions in IQ scores of preschool children.[107] Lead exposures are associated with other serious health effects, including adverse impacts on reproductive functions.[108] And recently, strong evidence surfaced to indicate that low level lead exposure is contributing to increased blood pressure in adults.[109] As a result of this and other research, EPA is in the process of lowering the national ambient air quality standard for lead.[110]

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[106] Brooklyn Navy Yard proceedings, DEC Revised Proposed Permit to Construct an Air Contaminant Source, exhibit 259A.

Test data from plants equipped with scrubbers and fabric filters have shown that effective control of lead emissions is possible. The Marion County, Oregon incinerator has achieved lead emissions of 0.00026 pounds per ton of refuse burned. Test data from Quebec City, Canada have shown significantly lower lead

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107. See, for example, Herbert Needleman et al., "Deficits in Psychologic and Classroom Performances of Children With Elevated Dentine Lead Levels," 300 New. Eng. J. Med. 689 (1979).

108. See, for example, David Bellinger et al., "Longitudinal Analyses of Prenatal and Postnatal Lead Exposure and Early Cognitive Development," 316 New Eng. J. of Med. 1037, No. 17 (1987).

109. See James L. Pirkle, Joel Schwart, J. Richard Landis and William R. Harlan, "The Relationship Between Blood Lead Levels and Blood Pressure And Its Cardiovascular Risk Implications," 121 American Journal of Epidemiology, No. 2 (1985) at 246.

110. See generally, U.S. Environmental Protection Agency, OAQPS Staff Paper, Review of the National Ambient Air Quality Standard for Lead (February 1986).

emission rates of 0.000008[111] and 0.00000377 pounds per ton of refuse burned.[112] The Wurzburg, West Germany facility has recorded test results of 0.0000387[113] and 0.0000785[114] pounds per ton of refuse burned.

Recommendation #14:

> The Department's final rules should establish a lead emission limit of 0.0005 pounds per ton of refuse burned.

2. Arsenic

Arsenic is a known human carcinogen, causing lung and skin cancer. It is also associated with chronic respiratory irritation, nervous system damage, and reproductive problems among women in communities near arsenic emissions.[115]

Incinerators with scrubbers and fabric filters have been able effectively to control arsenic emissions. Emissions of 0.00000032 and 0.0000000397 pounds per ton of refuse burned were monitored at the Quebec City[116] and Wurzburg incinerators,[117]

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[111] See Review of Plant Emissions Transport and Deposition as Input to Health Risk Assessment for the Brooklyn Navy Yard Resource Recovery Facility (May 15, 1987) at 4-5 (prepared by Signal Environmental Systems for permit proceeding, ex. 15).

[112] R. Weston, Health Risk Assessment -- Broome County Resource Recovery Project (October 1987) at Table 5-5.

[113] See Review of Plant Emissions, supra note 111 at 45.

[114] Weston, supra note 112 at Table 5-5.

[115] A.K. Ahmed and F. Perera, Respirable Particles (1979) at 60-61.

[116] Review of Plant Emissions, supra note 111 at 4-5.

(continued...)

respectively. Munich incinerator test data shows arsenic emissions of 0.00000356 pounds per ton.[118] Even the Westchester RESCO facility, equipped with a three-field electrostatic precipitator rather than a more effective fabric filter, has achieved arsenic emission levels of 0.000017 pounds per ton.[119]

Recommendation #15:

> The Department's final incinerator rules should include an emissions limit for arsenic of 0.00001 pounds per ton of refuse burned.

3. Mercury

Mercury is also a significant health hazard, posing risks to the central nervous system and of possible fetal damage. Mercury is particularly volatile, existing in liquid or vapor form at room temperatures and above. Special efforts to lower flue gas temperature to approximately 140° C. are necessary for the effective control of mercury emissions.[120] Additionally, removal of car and consumer batteries from the waste stream, product reformulation or substitution and

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117.(...continued)
[117] Weston Report, *supra* note 112 at Table 5-5.

[118] *Id*.

[119] New York State Department of Environmental Conservation, "Emission Source Report, Preliminary Report on Westchester RESCO" (January 8, 1986) at 9. The report's results were converted into pounds per ton.

[120] NITEP Report, *supra* note 59 at 71.

composting and recycling efforts could significantly reduce mercury emissions.[121]

The Quebec City incinerator has recorded mercury emissions of 0.00000008 pounds per ton of refuse. Monitoring data from the Marion County incinerator have shown emissions of 0.0026 pounds per ton, even without a program in place for the removal of batteries from the incinerator waste stream.[122] Even the Westchester County plant, equipped with only an ESP and neither a fabric filter nor a scrubber, has shown mercury emissions of 0.014 pounds per ton.[123]

Recommendation #17:

> The Department's final incinerator rules should include an emission limit for mercury of .0015 pounds per ton of refuse burned.

4. Cadmium

Cadmium is present in high concentrations in batteries, as well as in electroplating, alloys, paints and plastics. Links between cadmium and cancer have been shown,[124] and cadmium exposure is also associated with kidney damage, pulmonary emphysema, cardiovascular damage and bone changes. The U.S. EPA has announced its intent to list cadmium as a hazardous air pollutant under section 112 of the Clean Air Act.[125]

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[121] See discussion, *supra* at 19-22.

[122] Review of Plant Emissions, *supra* note 111 at 4-5.

[123] Preliminary Report on Westchester RESCO, *supra* note 119 at 9.

[124] Ahmed and Perera, *supra* note 115 at 59.

Modern, well-operated incinerators with pollution controls have demonstrated that effective capture of cadmium is possible. Quebec City test data show emissions of 0.0000036 pounds per ton and Wurzburg has been tested at 0.00000175 pounds per ton.[126]

Recommendation #18:

> The Department's final incinerator rules should include an emission limit for cadmium of 0.00002 pounds per ton of refuse burned.

E. Incinerator Operations

Achieving the pollution emission limits recommended in the previous sections will require a variety of sound operating practices. We outline several critical elements in the following paragraphs.

1. Provide for Incinerator Exit Gas Cooling

Exit gas cooling can play an important role in controlling toxic air emissions. Uncontrolled flue gas temperatures from solid waste incinerators are often greater than 400° Fahrenheit. Cooling these flue gases to under 300° Fahrenheit allows a greater percentage of heavy metals to condense onto particulate matter and be captured in the particulate control device.[127] Moreover, this measure also appears to cause organic compounds including chlorinated dioxins and furans to condense onto fine particles, facilitating the capture of some percentage of these organics by incinerator pollution control equipment.[128]

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[125] 50 Fed. Reg. 4200 (October 15, 1985).

[126] Review of Plant Emissions, *supra* note 111 at 4-5.

The Department's June 1986 draft does not mandate exit gas cooling prior to final particulate collection. This omission goes against the advice of the Department's own consultants. A major technical report prepared under contract to the DEC in August 1985 specifically recommanded exit gas cooling to provide an additional measure of safety in minimizing dioxin emissions.[129] A former top New York City Department of Sanitation environmental scientist has reached similar conclusions.[130]

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[127] CARB Report, supra note 55 at 189. See also, Hasselriis, supra note 58 at 31.

[128] Hasselriis, supra note 58 at 31. In 1983 Teller and Lauber suggested that dioxins and furans may behave like PCB's and could be removed at temperatures of about 120° Centigrade by dry scrubber/baghouse controls. See A.J. Teller and J.D. Lauber, "Control of Dioxin Emissions From Incineration," Air Pollution Control Association (1983). See also Clarke, supra note 59 at 19-21.

[129] Hasselriis, supra note 58 at 31.

[130] Clarke, supra note 59 at 26-27. Clarke also suggests reheating after stack gases exit the air pollution control equipment, to increase plume buoyancy and decrease concentrations of ground level pollutants in the incinerator's immediate vicinity. Id. at 8.

Recommendation #19:

> The Department's final rules should include provisions to increase condensation of heavy metals and organic compounds onto particulate matter by requiring cooling of exit gases to below 280° F. prior to entering into the particulate control device.

2. Set Tight Combustion Efficiency Standards

Incinerator combustion conditions play an important role in determining dioxin and furan emission rates.[131] Among the primary factors for controlling combustion efficiency are temperature distribution in the incinerator's combustion zone, residence time of refuse constituents in the combustion zone, and mixing conditions. The more efficient the incineration process, the greater the likelihood of converting combustible waste products into carbon dioxide and water vapor. In particular, a high combustion efficiency index can help to minimize dioxin and furan emissions.

The Department's proposal, however, is insufficiently stringent in terms of combustion efficiency. The June 1986 draft requires a combustion index of 99.5% based on a running 8-hour average, or 99.8% based on a running 7-day average.

Higher efficiencies and shorter averaging times both are feasible and would help insure greater destruction of organic compounds.[132] In Pennsylvania, for example, new BACT guidelines require combustion efficiency of 99.9% on an 8-hour average.[133] And Illinois has established a 2-hour combustion efficiency requirement of 99.9%.[134]

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[131] CARB Report, supra note 55 at 210.

Appropriately, the legislature has directed DEC to include provisions regarding combustion efficiency in its operating requirements. N.Y. Envtl. Conserv. Law §19-0306.2.d.

Recommendation #20:

> The final DEC rules should specify a two-hour combustion efficiency index of 99.9%.

3. Establish A Strict Limit On Carbon Monoxide Emissions

Carbon monoxide is a colorless, odorless gas that is one of only six widespread pollutants which EPA has officially found to be so ubiquitous and dangerous as to require a national ambient standard. Carbon monoxide interferes with the blood's ability to absorb oxygen, can slow reflexes, impair perception and thinking, cause drowsiness and in extreme cases cause unconsciousness and death. Long-term exposure is suspected of aggravating arteriosclerosis and vascular disease. Accordingly, incinerator carbon monoxide emissions should be minimized in their own right.

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132. Jack D. Lauber, "Best Available Control Technology, and Alternate Technologies for Municipal Solid Waste Resource Recovery," presented at the Institute for Local Self-Reliance Conference, Safe Waste Disposal for Southern California (January 28-29, 1988) at 6.

133. Pennsylvania Department of Natural Resources, supra note 86, Requirement A.4; a recently issued permit requires a combustion efficiency of 99.5% over a five-minute averaging period. See Erie, Pennsylvania Permit, supra note 87.

134. Illinois Kirby-Coffman permit, supra note 61.

A second reason for controlling carbon monoxide is the apparent relationship between carbon monoxide and dioxin emissions. Low dioxin emissions have been correlated with low carbon monoxide emissions.[135]

Again, the Department's proposal does not adequately address this issue. The 1986 proposal does not include a specific cap on CO emissions. The U.S. Environmental Protection Agency, however, has identified a 50 ppm CO emissions level (4-hour average) as a "good combustion practice" to minimize organic emissions from municipal garbage incineration.[136]

Recommendation #21:

> The final DEC rules should include a carbon monoxide in flue gas limit of 50 ppm on a 4-hour average, corrected to 12% CO_2.

4. Tighten Requirements for Incinerator Furnace Temperatures

Although the formation and destruction of incinerator organic compounds such as dioxin are still not fully understood, scientists agree that maintaining sufficiently high combustion temperature across the furnace must be assured if incinerator dioxin and furan emissions are to be controlled.[137]

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[135] See, for example, Floyd Hasselriis, "Optimization of Combustion Conditions to Minimize Dioxin Emissions," 5 Waste Management and Research 311 (1987) at 320-321.

[136] U.S. Environmental Protection Agency, Municipal Waste Combustion Study: Report to Congress (June 1987) at 59.

In its June 1986 draft guidelines, the Department of Environmental Conservation proposed that garbage burning incinerators be operated at temperatures not less than 1500° F. after the last point of overfire air injection, based on a 15-minute average of readings. The guidelines also stated that such measurements could be made directly or "through the use of a surrogate temperature measurement" acceptable to the Commissioner. The proposal also included a requirement that furnace design provide for a residence time and temperature which in combination are equivalent to at least one second residence at no less than 1800° F.

There are several weaknesses in this portion of the Department's proposal. First, the proposal envisions that the temperature requirement be met on a 15-minute average; continuous maintenance of minimum temperature is needed, however, to maximize destruction of organic compounds. Second, the proposal does not indicate how the 1500° C. temperature after last point of overfire air insures a consistent 1800° F. temperature in the combustion zone. Third, the DEC draft fails to mandate that temperature be measured at such strategic locations as above the flame and potential incinerator "cold spots." Such a requirement

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137. In addition to temperature, two other operating parameters are of importance -- residence time (the period during which refuse resides in the incinerator furnace) and turbulence (the degree of mixing between combustion gases and oxygen needed for burning). See CARB Report, supra note 55 at 220-221.

could provide critical temperature data and allow incinerator operators to adjust combustion conditions to maximize destruction of dioxins and furans. Recognizing such benefits, facilities in Oslo, Norway and Wurzburg and Munich, Germany measure incinerator temperatures in three different locations in the furnace and at the furnace exit.[138]

Recommendation #22:

> The Department's final incinerator regulations should require: (1) a minimum acceptable overfire air temperature of 1800° F., not 1500° F.; and (2) actual temperature monitoring at several locations within the combustion zone to demonstrate that the 1800° F. overfire air temperature is being met on a continuing basis.

5. Require The Use Of Auxiliary Fuel Burners During Critical Periods

Auxiliary fuel burners can significantly aid in efficient combustion and the destruction of dioxins and furans in the garbage burning process. During incinerator start-up, shut-down, partial load or upset conditions, furnace temperatures may drop below optimal levels. Auxiliary burners -- triggered automatically -- can help maintain incinerator temperatures during these periods.

For this reason, installation of auxiliary burners is becoming a standard requirement in states across the country. Michigan's standards, for example, require auxiliary fuel firing to "maintain efficient combustion" and "maximize the destruction of toxic materials."[139] Connecticut's guidelines require that auxiliary fuel burners be installed for automatic firing if the combustion gas temperature measured at the exit end of the high temperature zone approaches the established minimum.[140] And New Jersey's requirements for meeting the lowest achievable emission rate include the installation of auxiliary burners capable of: (1) heating the furnace chamber to 1500° F. prior to introduction of waste; (2) maintaining at least 1500° F. after secondary air injection during waste combustion; and (3) increasing combustion gas temperatures to 1800° F. if the state environmental department deems it necessary.[141]

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[138] Allen Hershkowitz, Garbage Burning Lessons from Europe: Consensus and Controversy in Four European States (1986) at 24.

New York State DEC's June 1986 proposal, on the other hand, allows the Commissioner to exempt incinerator operators from having to use auxiliary burners at critical points in the incineration process. Appropriately, the draft guidelines do require the installation of auxiliary burners and their use to achieve minimum temperature before waste is introduced and during burnout and upset conditions. Inexplicably, however, the guidelines also allow the Commissioner to exempt facilities from

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139. Michigan Department of Natural Resources, "Waste-To-Energy Facilities: Recommendations for Minimum Criteria and Guidelines" (September 27, 1985) at 27.

140. Connecticut DEP also notes that the auxiliary burners would be useful during periods when high moisture wastes are burned. Connecticut Guidelines, supra note 84 at 5, 9.

141. New Jersey Department of Environmental Protection, "Addendum to Air Pollution Control Guidelines for Resource Recovery Facilities and Incinerators" (November 1, 1984) at 2, 3.

having to use these burners "while processing difficult to burn waste" and "during periods of malfunction" -- two occasions during which the use of auxiliary burners is critical.

Recommendation #23:

> The Department's final incinerator regulations should require that garbage burning incinerators be equipped with auxiliary fuel burners in the combustion zone which fire automatically whenever lower furnace operating temperatures fall below 1800° F., including not only during start-up and shutdown, but also when processing wet or difficult-to-burn waste and during malfunctions. (At these times, waste charging should be slowed to allow greater combustion.)

F. Monitoring of Incinerator Emissions

Stringent emission limitations and rigorous operating requirements will not by themselves protect public health or the environment. A comprehensive monitoring and reporting program is necessary to guarantee and verify that an incinerator is operating properly, to provide an incentive to the operator to comply with permit requirements, and to supplement the still sparse data concerning incinerator emissions and optimal operating conditions.

1. Require Continuous Air Emissions Monitoring

One way of checking incinerator operations is through continuous monitoring of gases and critical operating parameters. Continuous monitoring technology now exists for oxides of nitrogen, carbon monoxide, carbon dioxide, sulfur dioxide, oxygen, hydrogen chloride, opacity, temperature and combustion index. And continuous monitoring of such parameters has become a standard permit condition at many facilities.[142]

DEC's June 1986 monitoring provisions are deficient in two respects. First, an incinerator operator could obtain a waiver from the HCl monitoring requirement upon a showing that reliable continuous monitoring of that pollutant is not possible. This potential exception may prove irrelevant, since it would be difficult to make the necessary showing. For the same reasons, however, the exception is unnecessary. Engineers are in general agreement that HCl can be continuously monitored, and such monitoring is being conducted, required, or proposed at numerous facilities.[143]

The second defect with DEC's proposal is its failure to require continuous monitoring of nitrogen oxides. The technology for such monitoring is readily available; oxides of nitrogen are no less important or more difficult to measure than sulfur oxides, for which DEC would require continuous monitoring. Most facilities now being permitted are required to monitor NO_x continuously.[144]

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[142] See, for example, Authority to Construct Conditions, Stanislaus Waste Energy Facility (August 19, 1986) at condition 30; Fairfax, Virginia PSD Permit, supra note 61 at paragraphs 15-16; Minnesota Pollution Control Agency Combined Air and Solid Waste Permit, Hennepin Energy Resource Co. Facility (January 27, 1987) at Section IV.

[143] See, for example, Maine permit, supra note 61; see also Pennsylvania Department of Natural Resources, Best Available Technology Requirements, supra note 86, Requirement D.1.

Recommendation #24:

> The Department's final rules should require that incinerators continuously monitor opacity and emissions of oxides of nitrogen, hydrogen chloride, carbon monoxide, carbon dioxide, sulfur dioxide, and oxygen.

2. Mandate Periodic Testing of All Pollutants of Concern

Emissions tests for particulates, metals and organic chemicals can only be performed on a periodic basis. Because of the significant health risks posed by emissions of these substances, a comprehensive, on-going program for periodic testing is essential.

DEC's current guidelines set out a sampling schedule that merely tracks the statutory minimum: a full test within 180 days of start-up and then three times over the next four years. Although such tests would be sufficiently comprehensive, the schedule is wholly inadequate. Stack tests should be at least biannual. In addition, particulate matter, which is a critical pollutant both in its own right and as the vehicle for a significant portion of heavy metal and organic emissions, should be tested monthly. Such a schedule would provide some assurance that emission limits are in fact being met, and would supply important data regarding emissions and optimal operating conditions, without imposing an undue financial burden.[145]

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[144] See, for example, Portland Maine Permit, *supra* note 61; San Marcos Permit, *supra* note 61; see also U.S. Environmental Protection Agency, "Preliminary PSD Determination for the Brooklyn Navy Yard Resource Recovery Project," Condition II.A; and see Pennsylvania Department of Natural Resources, *supra* note 86, Requirement D.1.

Recommendation #25:

The Department's final rules should mandate:

1) a comprehensive stack test for particulates, metals and organics within thirty (30) days of start-up;

2) a second comprehensive test ninety (90) days thereafter;

3) particulate tests monthly thereafter or whenever opacity exceeds more than 5% for 30 minutes consecutively; and

4) a comprehensive stack test every six months.

3. Provide for Additional Testing Following Measured Exceedances of Emission Limitations

When continuous monitors or periodic tests show exceedances of emissions limits, responsible incinerator operators will take corrective action and, as quickly as feasible, re-examine or re-test emissions to determine if the corrective action was successful. Such corrective action and re-testing are a safety and health necessity.

DEC's draft operating requirements do not specifically anticipate increased testing following permit violations.

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[145] Stack tests for particulates are relatively inexpensive. An expert witness for the project sponsor at the Brooklyn Navy Yard incinerator hearing testified that such tests cost only $3,500 per boiler. Testimony of Timothy Porter, Brooklyn Navy Yard Permit Proceedings; see also Exhibit 266. As such testing becomes more routine, costs may well decline.

However, such testing is necessary to determine whether emissions are acceptable and whether the conditions leading to the violations persist. In fact, the statute requires emissions testing after permit violations.[146] Accordingly, exceedances of the opacity limit should trigger a particulate test; a particulate exceedance should trigger a metals test; and any test indicating a violation should be performed again as soon as possible following steps to correct the situation.

Recommendation #26:

> The Department's final rules should require that the following actions be taken when emission limitations are exceeded:
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> 1) If opacity levels exceed 5% for a continuous period of 30 minutes, the operator should be required to schedule and conduct a particulate emissions test. If the particulate test reveals exceedances, a second particulate test should be conducted. If the second test also shows exceedances, a comprehensive stack test should follow, with appropriate enforcement action by the Department;
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> 2) If continuous gas monitors show an exceedance, corrective action should be taken with appropriate enforcement action by the Department; and
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> 3) If any comprehensive stack test shows a significant exceedance, corrective action should be taken immediately,

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[146] DEC's operating requirements must provide for "[m]onitoring of emissions for toxic air contaminants, or surrogates thereof where appropriate, to determine compliance with permit emission limits . . . following any detection of permit violations in a manner to be determined by the commissioner." N.Y. Envtl. Conserv. Law §19-0306.2.e. Thus, if a permit violation is detected, there must be a stack test.

> followed by another stack test within three months for the relevant pollutant(s). If the second test shows continued exceedances, the facility operator should submit a written proposal to the Department detailing what operational modifications will be made to come into expeditious compliance with emissions limitations.

4. Require Monitoring of Incinerator Operations

Monitoring and recording of an incinerator's temperature and combustion index, as discussed above, are essential. Monitoring of municipal solid waste intake, steam production, and ash residue production is also necessary to assess the safety and overall performance of a garbage burning incinerator.[147] Such records, if carefully maintained, can also provide valuable insight into the factors affecting incinerator emissions.

Recommendation #27:

> The Department's rules should require all incinerator operators to monitor:
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> 1) temperature at multiple locations within the combustion zone;
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> 2) combustion index;
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> 3) municipal solid waste intake, by weight and volume;
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> 4) steam production;
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> 5) ash residue production, by weight and volume; and

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[147] In part III, we propose a 90% volume reduction requirement. Monitoring of solid waste intake and ash production are necessary to determine compliance with this requirement.

6) the quantity, if any, of hazardous materials that are extracted from the incoming waste, as well as a quarterly analysis of the composition of a representative portion of incoming waste.

5. Assure Reporting And Dissemination Of Monitoring Results

To be useful, monitoring results must be provided to DEC and made publicly available. As the federal EPA has observed,

> the requirement to report the results of ... tests is just as important as the requirement to record the data . . . . It would serve no useful purpose for the Agency to require that . . . testing be recorded and retained in the plant files because neither the Agency nor the State . . . is sufficiently staffed to be able to visit each source and review [the data].[148]

Thus, monitoring requirements must insure maximum availability of data to regulatory authorities and to the public. All testing results should be promptly supplied to DEC, which in turn should provide these results to any person upon written request. There is absolutely no justification for anything but full dissemination of this important information.

Recommendation #28:

The Department's rules should require all incinerator operators to:

1) provide all continuous monitoring data to DEC in written weekly summaries and,

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[148] U.S. Environmental Protection Agency, Opacity Provisions -- Background Information for Promulgated Amendments (December 1985) at 2-2.

should the Commissioner so require, via computer telemetry;

2) provide the results of all stack tests, whether required by DEC or not, within seven days of the receipt of test results, but in no event later than 60 days of the test;

3) provide the same information, in the same manner, to local officials if requested to do so;

4) maintain written records of all monitoring and testing data for five years.[149]

G. Other Necessary Legislative and Regulatory Initiatives

Proper operations at new incinerators, with requirements for strict emission limits for key pollutants, will help reduce the significant health and environmental risks posed by incinerators. Additional initiatives are necessary and feasible, however, to further limit the hazards of incineration.

1. Require That Existing Incinerators Be Upgraded to Meet the New Environmental Rules

The Department's draft guidelines apply only to incinerators whose operators have had air quality permit applications completed after June 13, 1986, the date the guidelines were released. The effect of this broad provision is to exempt from the guidelines both existing incinerators and those yet-to-be-built incinerators whose sponsors completed air quality permit requests before June 1986. That would exempt as many as a dozen major facilities in New York from having to satisfy the Department's new incinerator requirements.

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[149] DEC should also make all monitoring information available to any person upon written request.

The failure of the proposed guidelines to cover existing incinerators, as well as those under construction or in final planning, is a major deficiency. Older incinerators without state-of-the-art controls generally emit far greater amounts of harmful air pollutants. For example, the Peekskill plant regularly emits ten times more HCl than the new DEC guidelines would allow, and the Albany ANSWERS plant has been shown to emit more than 100 times as much dioxin as Marion County. The active life of existing and recently completed incinerators may be 30 years or more. Thus, residents in the vicinity of these incinerators would be exposed to higher emissions over a long period.

It is not unreasonable to require major existing incinerator facilities to comply with the Department's final guidelines.[150] Retrofitting is increasingly recognized as an effective strategy for controlling incinerator emissions. The 13-year old Saugus, Massachusetts incinerator, for example, is presently shut down while acid gas scrubbers are being added.[151] Outside this country, retrofitting is well established. At the Avesta, Sweden facility, redesigning and retrofitting of the incinerator grate, furnace and pollution control system reduced total dioxin emissions to less than 1% of pre-retrofit levels.[152] In Bavaria, West Germany, all older municipal refuse-burning plants are being ordered to add dry scrubbers and fabric filters to supplement existing pollution controls.[153] And in Denmark, eight smaller, older plants without modern control equipment have been directed to close for environmental reasons.[154] The New York State Legislative Commission on Solid Waste Management, after returning from a tour of European incineration facilities, concluded that where existing plants in New York are not capable of achieving tight new levels of control, they should be retrofitted.[155]

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[150] The Department has plenary authority to control, abate and prevent air pollution. N.Y. Envtl. Conserv. Law §§19-0103, 0105, and 0301. Indeed, its regulations forbid "air pollution" outright. 6 N.Y.C.R.R. §§200.6, 211.2. Thus, although the 1985 solid waste legislation discussed prospective application of incinerator operating requirements, the Department has adequate authority to apply appropriate new requirements to existing facilities.

Recommendation #29:

> The Department's final incinerator regulations should require that existing

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[151] Other U.S. re-engineering projects have taken place at the Akron, Ohio plant and at New York City's Betts Avenue incinerator.

[152] Clarke, supra note 59 at 28-29.

[153] Maurice D. Hinchey, Chairman, New York Legislative Commission on Solid Waste Management, "Resource Recovery And Solid Waste Management In Norway, Sweden, Denmark and Germany: Lessons for New York" (December 1985) at 6.

[154] Id. at 4. In addition, Sweden has begun a five-year incinerator retrofit program.

[155] Id. at 23.

> garbage burning facilities adopt a four-year program for bringing themselves into compliance with the new DEC incinerator rules, except as provided in Recommendation #11, above.

2. Mandate The Training and Certification of Incinerator Personnel

Even the most sophisticated facility, with state-of-the-art pollution control devices, can emit high levels of air pollutants if poorly operated and maintained. Consequently, among the most crucial factors for controlling incinerator air pollution emissions is comprehensive training of operating personnel. As the New York State Legislative Commission on Solid Waste Management observed after touring garbage burning facilities in Norway, Sweden, Denmark and West Germany in 1985:

> "Perhaps the most impressive feature of the facilities visited by our party was the strong commitment by on-site managers and personnel at every level to a high quality of operation and performance."[156]

Environmental regulators are beginning to adopt strict programs for the certification of incinerator operators. In West Germany, operators of garbage burning facilities now undergo six months of theoretical training and two years on-site training prior to certification.[157] And Michigan's Department of Natural Resources has called for implementation of a licensing program that would require incinerator operators to have knowledge of

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156. New York State Legislative Commission, *supra* note 153 at 7.

157. *Garbage Burning, Lessons from Europe*, *supra* note 138 at 27.

safety and special operating procedures "before they can assume their formal position at the facility."[158]

The Department's June 1986 proposed incineration regulations do not fully address these issues. They state that the operation of a garbage burning incinerator shall be "directed" by a person or persons possessing an appropriate state resource recovery operator certification. But they do not provide even the broadest outline of the proposed certification program. And they do not clarify whether the rules would apply to a single or small group of top incinerator managers or to all key personnel on duty whenever the facility is in operation. Additionally, the proposed operator certification rules are deficient in that (1) they apply only to operators of incinerators which have completed permit applications after June 1986, not to operators of existing or already permitted

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158. Michigan guidelines, supra note 139 at 31.

Currently, no combustion training institute exists anywhere in the nation, despite the fact that the chief executive officer of one of the nation's largest incinerator manufacturers, Ogden-Martin, has publicly stated that successful incineration involves "40% hardware and 60% operations" and personnel. Paper presented by David Sokol, Chief Executive Officer, Ogden-Martin, at Shearson-Lehman First Annual Pollution Congtol Conference, New York City (December 11, 1987).

To be sure, the legislature has directed the New York State Energy Research and Development Authority to establish a training center for incinerator operators. Laws of 1987, Ch. 615, §21. But this facility is not yet operational. Moreover, on-going efforts of the American Society of Mechanical Engineers to establish worker training standards are limited to two positions -- shift supervisor and chief facility operator. But other incinerator employees, including control room personnel, tip floor operators, and crane operators, also perform critical tasks that warrant comprehensive training.

facilities, and (2) they do not require periodic operator refresher courses and re-testing after initial certification.

Recommendation #30:

> The Department's final incinerator rules should require that:
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> 1) all personnel with control room responsibilities, not just top managers, must undergo comprehensive theoretical training and be certified by the state in such areas as combustion theory, air pollution control, ash handling, and safety and emergency procedures and must undergo re-certification every three years;
>
> 2) other incinerator employees who perform critical tasks (e.g., floor and crane operators) must also undergo appropriate training and certification programs;
>
> 3) all on-site personnel must be trained in occupational health and safety procedures; and
>
> 4) the training and certification requirements must be satisfied at all existing incinerators as well as at newly constructed facilities.

3. Adopt Incinerator Shutdown Procedures and Permit Suspension Conditions

Releases of air pollutants in significant amounts are possible during upset conditions such as incinerator malfunctions or breakdowns of pollution control equipment. Accordingly, incinerator operators should be required to adopt stringent procedures for controlling pollution discharges under those conditions and should suspend garbage burning when the malfunction cannot be corrected within one hour. Incinerators should also be subject to suspension or revocation of their operating permits if the nature or frequency of pollution releases indicates serious or chronic operating problems.

The Department's June 1986 proposal establishes no specific requirements on these issues. Instead, it directs only that incinerator operators submit plans for shut-down and upset conditions, which must be found acceptable by the Commissioner. The proposed rules do not indicate the circumstances under which suspensions of operating permits might occur.

The situation in other jurisdictions varies. Germany, for example, follows the practice that violations of emissions standards for more than one hour generally require an incinerator to close until the problem is corrected.[159] Similar guidelines have recently been adopted in Switzerland.

Recommendation #31:

The Department should:

1) identify conditions tied to continuous monitoring and stack tests which warrant the prompt discontinuation of refuse charging (e.g., waste shut off to the combustion unit if, for more than 15 minutes, temperatures at the last point of overfire air fall below 1600° F., combustion efficiency drops below 99.5% or opacity exceeds 5%);

2) establish procedures for safely accomplishing such temporary shutdowns; and

3) specify general conditions under which fines, or suspension/revocation of

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[159] Garbage Burning, Lessons from Europe, supra note 138 at 22.

incinerator operating permits would occur (i.e., a persistent pattern of violation of emission limits or operating parameters).

4. Eliminate Offset Exemptions for Resource Recovery Facilities

DEC's current regulations purport to exempt waste-to-energy incinerators locating in nonattainment areas from the obligation to obtain "offsets" (i.e., corresponding pollution reductions from other sources) to their emissions.[160] Though the Department's view of the validity of this provision is unclear, the fact is that new incinerators in nonattainment areas (for example, New York City's proposed Brooklyn Navy Yard facility) have not obtained the required offsets.

DEC's exemption for these facilities is inconsistent with and preempted by the federal Clean Air Act. EPA has made it clear on more than one occasion that such exemptions are invalid.[161] There is no policy justification for such an exemption.

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[160] 6 N.Y.C.R.R. §231.8; cf. 6 N.Y.C.R.R. §231.5.

Recommendation #32:

> The Department's revised regulations should eliminate any exemption for incinerators from the normally applicable emissions offset requirements.

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[161] E.g., 50 Fed. Reg. 25417, 25418 (June 19, 1985); *id*. at 23032, 23033 (May 30, 1985); 48 Fed. Reg. 28289, 28290 (June 21, 1983). See also Natural Resources Defense Council petition to U.S. Environmental Protection Agency, dated December 28, 1987 (seeking that EPA direct New York State to repeal its exemption for garbage burning incinerators from federal Clean Air Act emissions offset requirements), and March 24, 1988 letter to NRDC from EPA Region II Administrator, Christopher Daggett.

III. INCINERATOR ASH

Solid waste does not disappear once it is sent to garbage burning plants. Incineration converts some of this waste to carbon dioxide, other gases, and water. It sends some out the stack as small particles. And it leaves a significant amount behind as ash. For every ten tons of waste that enter an incinerator, as much as three tons, by weight, come out as ash residue. For example, New York City's proposed Brooklyn Navy Yard incinerator would generate almost 1,000 tons a day of ash for which disposal options must be found.[162]

Among the key risks of solid waste incineration are those posed by high concentrations of toxic metals and dioxins frequently found in ash residue.[163] Ironically, as air pollution control improves, incinerator ash contains increasing amounts of these toxins in more bioavailable forms. These substances pose significant health and environmental risks through air- and water-borne dispersal during handling, transport, and disposal, through surface runoff, and through leaching into ground or surface waters.

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[162] See New York City Department of Sanitation, *Final Environmental Impact Statement for the Proposed Brooklyn Navy Yard Resource Recovery Facility* (1985) at 2-101 (800 tons per day bottom ash, 135 tons per day fly ash).

[163] Concentrations of heavy metals in fly ash have been found as high as the following: lead, 50,000 - 90,000 ppm; cadmium, 2,210 ppm; arsenic, 750 ppm; mercury, 300 ppm. See Knudson, *The State of Washington Study of Municipal Incineration Residue and its Designation as a Dangerous Waste* (November 1986) at Table A-2; Brunner & Monch, "The Flux of Metals Through Municipal Solid Waste Incinerators," 4 *Waste Management & Research* 105, 114 (1986); NITEP Report, *supra* note 59 at 62, Fig. 26. EPA's recent ash characterization study found lead concentrations in *combined* ash as high as 36,600 ppm. EPA, *Characterization of Municipal Waste Combustor Ashes and Leachates from Municipal Solid Waste Landfills, Monofills, and Codisposal Sites* (1987) at Table 2-2.

Measured concentrations of total dioxins and furans in fly ash have reached 30,900 ppb. Ozvacic, "Emissions of Chlorinated Organics from Two Municipal Incinerators in Toronto," 35 JAPCA 849 (1987) at Table IV. For further data on dioxin concentrations see Exhibit 233 in the permitting proceeding for the Brooklyn Navy Yard Resource Recovery Facility.

New York's current legislative and regulatory scheme does not adequately address the incinerator ash problem. DEC has interpreted state and federal hazardous waste laws to exclude from coverage ash generated by garbage burning incinerators, regardless of its actual toxicity.[164] Although DEC considers ash as a "special waste," this remains an undefined category. In practice, a "special waste" may be disposed of in any permitted landfill authorized to accept ordinary municipal solid waste. Moreover, the state does not even insure that all ash is sent to a permitted landfill. Ash from Albany's ANSWERS plant, for example, has been used as landfill cover material. Ash from other New York facilities, such as the Glen Cove plant on Long Island, has been diverted to "reuse" in road building.[165]

The Department has announced plans to develop new rules by the end of this summer, which for the first time would provide a comprehensive scheme for the handling and disposal of incinerator ash. In the following sections, we outline the minimum requirements that should be incorporated in such rules to protect public health and the environment.[166]

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[164] See, for example, letter from Henry G. Williams, then New York State DEC Commissioner, to Lee M. Thomas, U.S. Environmental Protection Agency Administrator, April 29, 1987. Although that legal issue is outside the scope of this report, we dispute that interpretation of the statute and regulations.

[165] Michelle Slatalla, "The 'Trash' of Incineration," Newsday (December 16, 1987) at 9, 32.

A. Separately Manage Fly and Bottom Ash

Incinerators generate two types of ash, each with distinct characteristics. Fly ash, which constitutes roughly ten percent of the total amount of ash, is the material captured in the air pollution control devices. Bottom ash is the residue that falls to the bottom of the incinerator pit, rather than being carried along with incinerator flue gases.

Fly ash contains significantly higher concentrations of heavy metals and dioxins in more bioavailable forms than does bottom ash. In fact, virtually every sample of fly ash tested has exceeded federal standards defining a hazardous waste, usually because of excessive concentrations of both lead and cadmium.[167]

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[166] These proposals are essentially consistent with those in the July 1986 Environmental Defense Fund petition to the New York State Department of Environmental Conservation and with those of the environmental intervenors in permitting proceeding for the proposed Brooklyn Navy Yard facility. For additional information, see the 1986 petition and proposed condition 4, Exhibit 109, in the record of the Brooklyn Navy Yard Resource Recovery Permit Proceeding.

[167] "Ash from Municipal Waste Incineration Exceeds Federal Toxicity Standards," Hazardous Waste News (November 30, 1987) at 453; see also Exhibit 231, Brooklyn Navy Yard Resource Recovery Permit Proceeding, "Summary of Available E.P. Toxicity Results," prepared by the Environmental Defense Fund; New York State Department of Environmental Conservation, Ash Residue Characterization Project: Summary Report (1987).

Combined ash fails the test about half the time, bottom ash only a third.[168]

Most incinerator operators combine bottom and fly ash prior to disposal for reasons of convenience. Such mixing dilutes the more toxic fly ash into a large volume of less toxic bottom ash. But available data indicate that mixing actually increases the total amount of ash that can be expected to fail testing procedures and have to be managed as a hazardous waste. Combined ash qualifies as a hazardous waste substantially more often than does bottom ash alone.[169] Thus, mixing fly ash and bottom ash is not a substitute for effectively treating toxic fly ash.[170]

Recommendation #33:

> DEC's final regulations should require separate collection and management of fly and bottom ash.

B. Require Frequent and Thorough Ash Testing

Because of the potential dangers they present, incinerator fly and bottom ash should be tested frequently. The tremendous variability in solid waste, and therefore in ash, necessitates daily sampling to insure statistically valid and representative results.[171]

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[168] See sources cited supra note 167.

[169] Id.

[170] While treatment, particularly of fly ash, prior to disposal is justified and should be pursued, considerable scientific uncertainty remains as to the effectiveness of currently available treatment processes. Development of regulatory standards and a permit process governing treatment are prerequisites for its proper implementation.

Comprehensive ash testing should reflect existing federal requirements as well as the particular dangers posed by the ash. One ash sampling technique is the EP toxicity test, required by state and federal regulations.[172] That test, however, is an inadequate indicator of the leaching potential of alkaline wastes such as ash generally, and combined fly ash and scrubber residue in particular. A similar test using distilled or rain water as the leaching medium may be a more accurate indicator of leaching behavior of ash disposed in monofills. But leaching is not the only route of public or environmental exposure to ash. Because of the possibility of direct exposure (e.g., ingestion or inhalation), and since the EP toxicity test looks only at eight metals, a third test -- characterizing the metal and organic content of the ash itself -- is also necessary.

Other states are expanding their ash testing requirements. For example, permits from the state of Maine require analysis for total metals and dioxins.[173] So do Connecticut's regulations.[174] A distilled water leaching test is required by the Vermont Agency of Environmental Conservation[175] and recommended by the Minnesota Pollution Control Agency.[176]

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[171] See, for example, Rhode Island Department of Environmental Management, Division of Air and Hazardous Materials, "Fact Sheet For the Proposed Quonset Point Resource Recovery Facility" (1987) at 2 (describing plan for daily ash testing at proposed Quonset Point incinerator).

[172] 40 C.F.R. §§261.24, 262.11; 6 N.Y.C.R.R. §§371.3(e), 372.2(a)(2)(iii).

[173] See, for example, Permit for Maine Energy Recovery Co. facility, Biddeford, Maine, conditions 4(b), 4(c); Permit for Penobscot Energy Recovery Co. facility, Orrington, Maine, conditions 3(b), 3(c).

Recommendation #34:

DEC's final regulations should:

1) mandate daily collection and compositing of separate fly and bottom ash samples in sufficient number to insure statistically significant results;

2) require each operator to submit a protocol for ash sampling; and

3) require that all samples be tested for EP Toxicity, toxicity of leachate using only distilled water as a leaching medium, and the total concentration of individual heavy metals, dioxins, and furans.

C. Adopt Stringent Rules to Prevent On-Site Dispersal of and Exposure to Incinerator Ash

Because it is composed of small, easily dispersed particles, incinerator ash poses a direct threat to the health of workers at incinerators and nearby residents. Anyone who has toured an operating solid waste incinerator in the U.S. is likely to have been struck by its dusty condition. Fugitive emissions are a significant problem within the facility, particularly during the process of collecting ash and conveying it to the quench pit.

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[174] Connecticut DEP, Regulations Concerning Residue Testing for Resources Recovery Facilities, 22a-231-1(b)(1) (1988).

[175] See Vermont Agency of Environmental Conservation, Disposal Facility Certification for Rockingham Landfill, Finding of Fact #3, Condition 6(a); Vermont AEC, Treatment Facility Certification for Vicon Recovery Systems facility, Rutland, Condition 8.

[176] Minnesota Pollution Control Agency, Ash Evaluation Recommendations (August 1987) at 4 (draft).

State regulations are surprisingly silent on this issue. Ash handling is largely left to the operators' discretion. While New York is hardly alone in leaving these matters unregulated, state officials can no longer ignore the dangers to plant employees and nearby residents.

Recommendation #35:

> The Department should require each incinerator operator to develop a detailed plan for the safe on-site handling of ash residue. Such plan should, at a minimum, include:
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> 1) procedures to control the dispersion of ash particles (e.g., enclosed ash conveyors and ash quenching);
>
> 2) procedures to insure that water used in air pollution control processes, ash quenching or during facility cleaning is fully contained and treated to remove toxic substances, and that remaining wastewaters and sludge are tested for toxicity and disposed of accordingly;
>
> 3) a requirement that employees are adequately protected under all circumstances where exposure to ash particles may occur; and
>
> 4) a program for regular testing of employees for exposure to toxic substances.

D. Require Stringent Controls on the Transportation Of Incinerator Ash

Transporting ash from incinerators to disposal sites is another potential avenue of public exposure. Large amounts of ash residue are involved. Every day, for example, the Westchester County Resource Recovery Facility produces approximately 15 truckloads of ash.[177] If New York City builds the five incinerators now being considered, it will be transporting over 2,500 tons a day of ash in 150-foot-long barges.[178] Ash transport on this scale is vulnerable to wind-blown dispersal, spills, and leaks.

Ash that blows off of, or leaks from, a truck or barge poses a threat through several potential exposure routes. Of primary concern are direct inhalation, ingestion of tainted soil or food (particularly for children living near transportation routes), and contamination of surface waters.

At present, DEC's regulations require merely that ash not be transported in a "smoldering condition" and that it be drained free of water before transportation.[179] Though important, these requirements are hardly sufficient to insure that ash is transported in a safe and careful manner.

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[177] Allen Hershkowitz, "Assessment of U.S. Garbage Burning Practices" (in process; not yet published).

[178] This calculation is based on the construction of the Navy Yard facility as well as 2,000 tons per day facilities in Manhattan and the Bronx and a 1,200 tons per day facility in Queens, for a total capacity of 8,200 tons per day. See New York City Department of Sanitation, The Waste Disposal Problem in New York City: A Proposal for Action (April 1984) at 7. It does not reflect ash generated by the existing incinerators, or the planned 3,000 tons per day facility for Staten Island, which, under current plans, would not send ash for disposal by barge.

[179] 6 N.Y.C.R.R. §360.8(b)(2)(ii).

Recommendation #36:

> The Department's final regulations for the transport of incinerator ash should require:
>
> 1) moistening of ash residues prior to transportation to, and as necessary at, the disposal site;
>
> 2) use of covered and water-tight containers or vehicles to prevent air- or water-borne releases;
>
> 3) use of dedicated containers or vehicles and other equipment exclusively to handle and transport ash; and
>
> 4) collection and treatment of wastewaters from the quenching of ash or cleaning of transportation equipment.

E. Dispose of Ash Only in Secure Monofills

Historically, incinerator ash has, at best, been disposed of in ordinary landfills along with municipal solid waste. At worst, it has been dumped indiscriminately or used as landfill cover or deicing grit on winter roads.

The well-known environmental hazards of landfilling ordinary waste are in many respects compounded in the case of incinerator ash.[180] Compared to municipal solid waste, ash often has significantly higher concentrations of dioxins and heavy metals, and those substances are both more bioavailable and, in the case of metals, more leachable.[181] Accordingly, the ultimate disposal of ash must be at least as protective as it is for solid waste, especially with regard to ash that fails the EP test or distilled water extraction test.

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[180] To be sure, some of the problems with landfilling raw refuse are mitigated by incineration; for example, ash is relatively odor-free and will not produce methane gas.

Moreover, disposing of ash in the highly acidic conditions of an ordinary landfill can heighten environmental risks by increasing heavy metal leaching.[182] As a result, many scientists and regulatory officials now believe that incinerator ash should not be landfilled with ordinary municipal waste.

Monofilling of incinerator ash is emerging as standard practice in some communities. The Westchester County incinerator is the first New York plant with a dedicated monofill; but other facilities, such as those in Marion County (Oregon) and Claremont (New Hampshire), are also adopting this approach. Several states, including Connecticut, Pennsylvania, and Washington, are proposing monofill requirements, and the U.S. EPA may soon issue guidance recommending separate ash disposal.

Monofilling alone is not sufficient to insure proper ash management. It does not supplant the need for state-of-the-art

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181. Richard Denison, "Fundamental Objectives of Municipal Solid Waste Incinerator Ash Management" at 5 (prepared for presentation at the 81st Annual Meeting of the Air Pollution Control Ass'n, June 1988) (and references 5, 20-27 therein).

182. See, for example, Pennsylvania Department of Natural Resources, The Regulation of Municipal Waste Incinerators: Air Emissions and Ash Residue Management (December 1987) at 14.

containment with leachate collection and extensive groundwater monitoring.[183]

Recommendation #37:

The Department's regulations should provide:

1) incinerator fly ash and bottom ash must be separately disposed in DEC permitted monofills;

2) ash monofills must satisfy at least the technological requirements for new sanitary landfills accepting municipal solid waste and must be equipped with leachate collection systems above and between liners and extensive ground water monitoring wells;

3) a monofill accepting ash that exceeds the EP toxicity test or distilled water test limits shall be equipped with, at a minimum, two composite liners;

4) leachate collected from ash monofills must be tested for toxicity, treated if necessary, and disposed of properly; and

5) all ash monofills must meet EPA-approved state requirements applicable to hazardous waste landfills regarding closure and post-closure monitoring.

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[183] The consequences of monofilling are complicated by the use of scrubbers. The higher pH resulting from the addition of lime to the residue will reduce leaching of some metals. Amphoteric metals, however, including lead, zinc, and certain forms of cadmium, will leach in greater amounts as pH rises. The enhanced leaching of lead in particular makes full containment critical.

Added lime may also cause some hardening of the ash. There is no evidence, however, that this reduces leaching or that the resulting compound will remain stable over the long term. Indeed, it has been suggested that "lime attack," which has been observed in studies of coal ash, may actually enhance leaching. See "Fundamental Objectives of Municipal Solid Waste Incinerator Ash Management," supra note 181 at 4-5.

F. Require Achievement of Maximum Volume Reduction

Garbage burning is intended to reduce the volume of waste requiring land disposal. How successful an incinerator is in accomplishing this task depends on the amount of noncombustible material it accepts and the efficiency with which it burns. Substantial volume reduction is a sign that an incinerator is burning efficiently and not accepting items that it is counterproductive to attempt to burn.[184]

Japan is most successful in this area. Because noncombustibles are widely pre-sorted, many Japanese incinerators achieve 95% volume reduction.[185] This is higher than virtually any American facility now achieves and is made possible by extensive recycling that removes many noncombustibles from the waste stream. New York should establish a standard to reduce non-combustibles in incinerator ash stringent enough to insure maximum combustion, and to encourage the source separation or pre-incineration removal of noncombustibles. Many U.S. facilities do not now achieve a 90% reduction, although incinerator manufacturers generally promise that level of performance.

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[184] Many noncombustible items, such as metal cans and glass bottles, are also readily recyclable. Of course, other easily recycled components of the waste stream, notably paper, are highly combustible.

[185] Garbage Management in Japan, supra note 3 at 76.

Recommendation #38:

> DEC's final regulations should require all incinerators to reduce the volume of the waste introduced into the incinerator by at least 90%.

G. Apply All Ash Management Requirements to Existing Facilities

Ash produced from existing incinerators (i.e., already completed waste-to-energy plants and older municipal and apartment house incinerators) is not significantly less hazardous than what may be expected from the newest facilities now coming on line.[186] Obtaining an appropriate site for an ash monofill or performing more comprehensive tests costs no more for an older facility than for a new one. Accordingly, there is no justification for not applying all ash handling and disposal requirements equally to existing and future facilities.[187]

Recommendation #39:

> The Department's final rules should direct existing incinerators to comply with all new ash management regulations within one year of their adoption.

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[186] As noted above, the ash from more modern and thus more efficiently controlled facilities will, as a rule, be somewhat more hazardous than that from an older, and less well controlled, facilities. However, even existing New York State incinerators are generating ash that is hazardous. See Ash Residue Characterization Project: Summary Report, supra note 167. Any justification for differential management of ash from older and newer facilities collapses in light of these data.

[187] The one arguable exception to this statement is the 90% volume reduction standard, which is to some extent a function of the combustion technology of the incinerator. With regard to this requirement, we recommend the same four-year grace period suggested in the air pollution chapter.

H. Encourage Strategies That Remove Metals From The Incinerator Waste Stream

The most effective way to reduce ash toxicity is to keep heavy metals out of the waste stream, or at least out of incinerators, in the first place. The waste reduction and recycling initiatives discussed earlier in this report (e.g., removing household hazardous wastes) begin to move in this direction. Through product or process substitution, recycling, or preprocessing, additional gains could be made.[188] DEC should continue to explore mechanisms to reduce the toxicity of ash through limiting inputs to the incinerator.

Recommendation #40:

> DEC should encourage non-burn waste management alternatives and pre-sorting technologies for removing heavy metals from the waste stream as tools for reducing the toxicity of incinerator ash.

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[188] Indeed, evidence is mounting that alternative incineration technologies that presort waste and separate metals prior to burning of "processed fuel" can substantially reduce both the volume and toxicity of incinerator ash, as well as cut incinerator air emissions of heavy metals by 40% or more. See, for example, Ed J. Sommer, Jr., *et al.*, "Emissions, Heavy Metals, Boiler Efficiency And Disposal Capacity For Mass Burn Incineration With A Presorted MSW Fuel" (prepared for presentation at the 81st Annual Meeting of the Air Pollution Control Association, June 20-24, 1988).

APPENDIX A

The following is a brief summary of some of the major provisions contained in the three principal solid waste bills now being considered by the New York State Legislature.

I. THE GOVERNOR'S PROGRAM BILL

A dominant theme of the Governor's solid waste bill (A.8736) is an emphasis on recycling and waste reduction as the preferred methods of solid waste management. A hierarchy of solid waste management "priorities" in the bill is listed as: 1) waste reduction; 2) recycling and reuse; 3) incineration with energy recovery; 4) landfilling.

The bill also stresses keeping ultimate responsibility for managing solid waste in the hands of local governments. Under this legislation, localities would be responsible for adopting comprehensive solid waste management plans to be submitted to the state by April 1989. Cities and towns would also be required to enact local laws by December 1991 (New York City would have until December 1993) mandating the separation of recyclable materials from waste disposed of in municipal landfills or incinerators. Further, municipalities would be directed to establish separate collection programs for pesticides and household hazardous wastes. The Governor's proposed bill additionally mandates the composting of leaves and yard wastes in all communities served by new or expanded landfills or incinerators.

The Governor's legislation calls for an expanded state role in providing technical and financial assistance to localities. The bill would create a state information clearinghouse in the Environmental Facilities Corporation to provide technical assistance to communities seeking out sources of, and markets for, secondary materials. Similarly, the Department of Environmental Conservation would be charged with helping municipalities create and expand markets for recyclable goods they have collected. Broader technical assistance in developing local solid waste programs would also be provided by the New York State Energy and Research Development Authority. A separate provision in the bill enables the Department of Economic Development to offer loans and other financial aid to projects utilizing secondary materials.

Funding for many of these initiatives would be drawn from two major areas. First, a \$3- to \$5-a-ton tipping surcharge would be imposed on wastes disposed of by commercial or private haulers in municipal landfills or incinerators. Monies generated from these increased tipping fees would be funneled into landfill closures and other municipal solid waste projects. Second, the legislation proposes to collect an estimated $60 million in unclaimed nickel deposits from the state's bottle bill to fund local recycling and household hazardous waste programs.

This legislation would also commission feasibility studies to establish a state-run waste oil reprocessing facility, and to implement a package labeling program to inform citizens of the content and recyclability of packaging for various consumer goods.

II. THE ASSEMBLY'S "WASTE REDUCTION AND RECYCLING ACT OF 1988"

This bill (A. 8823), crafted under the auspices of Assemblyman Maurice Hinchey, adopts a set of solid waste management techniques paralleling those outlined in the Governor's legislation. It places waste reduction, recycling and reuse as top "priorities," followed by incineration with energy recovery and landfilling. It would also require all municipalities, including New York City, to adopt local mandatory recycling laws by September 1991.

A major thrust of this bill is to discourage or restrict the use of nonrecyclable or nonreuseable materials. The legislation would create a three-cent tax on most non-food packaging sold in the state; manufacturers would receive credits under the tax for packaging that is recyclable or made from recycled materials. An additional provision would grant broad authority to the Department of Environmental Conservation to ban or limit the sale non-recyclable or non-recycled packaging. The use of polystyrene foam and polyvinyl chloride (PVC) would be banned outright beginning in 1990.

State financial and technical assistance would also be provided under this bill to promote the greater use of secondary materials. One proposal would grant manufacturers a five dollar tax credit for every ton of secondary material such as paper, green glass and plastic utilized above the amount used the previous year. Tax credits would also be available for New York beer breweries that expand their use of reusable bottles. The Departments of Economic Development and Environmental Conservation would be responsible for overseeing utilization programs for secondary materials. And the Environmental Facilities Corporation, through an Office of Waste Reduction and Recycling, would assist communities in, among other things, locating markets for recyclable materials.

The disposal problems of waste oils, household batteries and tires are also addressed in this legislation. The Environmental Facilities Corporation would be directed to study the feasibility of constructing a state waste oil reprocessing facility. The bill would also require that retailers, distributors and manufacturers of household batteries accept these products for return by consumers. Lastly, a fifty cent tax would be assessed on every tire sold in the state; monies collected from these fees would fund grant and loan programs for tire resource recovery plants and a rubberized-asphalt pilot program run by the state Department of Transportation.

Additional funding for solid waste programs would come from revenues generated by the state packaging tax and from an increased tipping fee, equalling $5-a-ton, to be levied on all haulers disposing of waste in municipal landfills or incinerators.

III. THE SENATE'S "OMNIBUS SOLID WASTE MANAGEMENT ACT OF 1988"

The Senate legislation (S. 6600), introduced by Senator Bruno, calls for a more direct state role in helping localities manage their solid waste. Its centerpiece is a provision that would provide state grants of up to 50% of the costs of constructing or retrofitting all incinerators, landfills and other solid waste facilities. The state Department of Environmental Conservation would also be given the power to site these solid waste facilities in regions where local governments were unsuccessful in their own efforts. Additionally, the Department of Environmental Conservation would be obliged to provide communities with technical assistance (including the drafting of generic health risk and environmental impact statements) to construct municipal solid waste disposal facilities. A state solid waste management board would be created to make recommendations to the Department of Environmental Conservation on many of these programs.

The Senate legislation contains a few proposals focusing on waste reduction and recycling. The bill would establish a waste reduction council to study existing packaging designs and identify possible minimization techniques. The Department of Economic Development would be the lead state agency responsible for facilitating and developing markets for secondary goods as well as promoting the greater utilization of these materials. The DED would also be charged with administering a waste audit program to help industries reduce their solid waste generation.

State Infectious Waste Regulatory Programs

The Council of State Governments

Foreword

The Council of State Governments is pleased to release *State Infectious Waste Regulatory Programs*. This report analyzes the results of a CSG 50-state survey which documents a dramatic change in state regulatory priorities in the area of infectious waste disposal. Overall, this report demonstrates the Council's ongoing commitment to becoming the integrated, regionally-based, national organization dedicated to delivering quality, value-added products and services.

Carl W. Stenberg
Executive Director

This report is a product of The Council of State Governments. Carl W. Stenberg, Executive Director. The Project Manager for this report is R. Steven Brown, Director of the Center for the Environment and Natural Resources, The Council of State Governments. The author is Sue Markland Moreland, President of The Markland Group, with the very able assistance of Andrew Hinson.

The information presented in this report was compiled through the use of a written questionnaire and followup telephone survey. The purpose of the report is to identify trends in a fast moving regulatory field. To find out the specific requirements of a state, the appropriate state agency should be contacted.

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STATE INFECTIOUS WASTE REGULATORY PROGRAMS

Heightened public awareness of AIDS and its transmission by blood, blood products or bodily fluids has raised the question of how infectious wastes are regulated by this nation's waste management programs. In January, 1988, the press reported solid waste haulers in Texas refused to handle designer garbage bags retailed by Neiman Marcus because these bags were red — the color used by hospitals for the disposal of infectious wastes. Other national press reported children playing with discarded needles found in an Indiana clinic's dumpster and hospital wastes washing up on the New Jersey shore. These events have served to focus public interest in this long-ignored portion of the solid waste stream.

No one can doubt that public demand for governmental attention to the generation, handling and disposal of infectious waste has changed dramatically in the last two years. State governments have proved to be the most responsive to this new environmental issue.

In most previous environmental regulatory programs, the federal government established baseline programs which state governments were expected to emulate. Infectious waste regulatory programs, however, are being created by state governments, which have taken the initiative. With no federal statutes or regulations to guide them and no federal money to support the creation of a new environmental regulatory program, states, regardless of size or location, are in the process of meeting the public's demand for protection. It is this clear state-generated initiative that this report describes.

In 1976, the Resource Conservation and Recovery Act (RCRA) defined hazardous waste to be a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or *infectious characteristics* may cause [illness or pose substantial present or potential hazard to human health and the environment]. In 1978, the U.S. Environmental Protection Agency proposed its first set of hazardous regulations. A definition of and treatment methods for infectious wastes were included in the Agency's proposal. However, when the final rule was published on May 19, 1980, the Agency stated in the preamble that infectious waste regulations would be published when RCRA work on treatment, storage, and disposal standards was completed. Eight years and two reauthorizations of RCRA later, still no federal regulations have been promulgated.

With no federal baseline and no federal funds to develop state regulatory programs, state governments were slow to initiate a new regulatory program in a field overlooked by the public. When USEPA completed its final *Manual for Infectious Waste Management* in May of 1986, 28 states had no regulatory structure addressing infectious wastes.

This report analyzes the results of a Council of State Governments survey completed February 1, 1988, which documents a dramatic change in state regulatory agency priorities. A total of 50 states and the District of Columbia responded to CSG's survey either in writing or by telephone interview. Eight states (AR, FL, KY, MO, NJ, OK, IN, WA) provided responses from both their solid waste offices and their health departments. Of those states responding 31 surveys were completed by the solid waste programs; while 11 states plus the District of Columbia submitted information from their health departments (usually the division responsible for licensing health care facilities). The responding state agencies follow:

". . . children playing with discarded needles, and hospital wastes washing up on the shore have served to form public interest in this long ignored portion of the solid waste stream."

STATE AGENCIES RESPONDING TO SURVEY

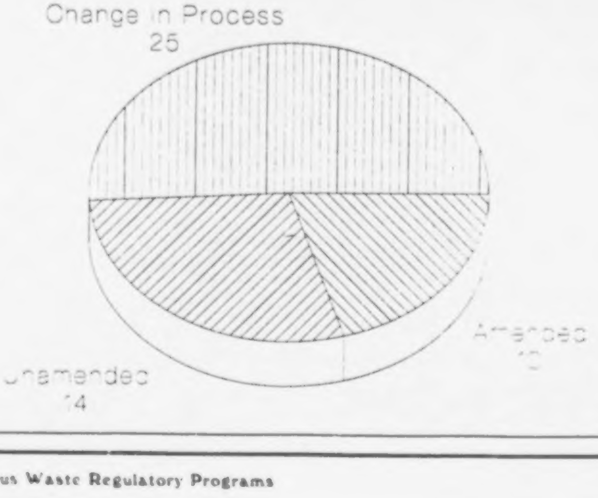
Solid Waste		Health Dept	Both
AL	NE	AZ	AR
AK	NH	CO	FL
CA	NM	HA	KY
CN	NY	MD	MO
DE	NC	MA	NJ
GA	OH	MS	OK
ID	OR	NV	TN
IL	PA	ND	
IN	SC	RI	
IO	SD	TX	
KS	UT	WV	
LA	VT		
ME	VA		
MI	WA		
MN	WS		
MT	WY		

A majority of states will be regulating infectious wastes in the near future.

In eleven states, new or amended infectious wastes statutes or regulations have been promulgated since USEPA published its 1986 Guidance. In addition to those states which have completed the passage of new laws or the promulgation of new regulations, 25 states have initiated processes that could result in changes to their requirements for infectious waste handling, transportation and disposal (Figure 1). Of these twenty-five, six states (ME, MA, MN, MO, NY, VT) are on the second round of modifications since the EPA guidance.

Figure 1

Changes in State Infectious Waste Regulations Since 1985



At this time only 11 states and the District of Columbia answer "No" to the question "Does your state regulate infectious wastes?" Of those eleven, only six (AL, MI, MT, NV, ND, WY) have no immediate plans to expand their regulations to include infectious waste. In summary, 88% of the states, compared to 57% of the states in 1986, are or will soon be regulating infectious wastes.

This push for change is nationwide in scope.

Large and small states are responding to both internal professional advice and public demand (Figure 1). Unlike usual regional upgrading efforts in environmental management, such as the recent interest of Northeastern states in ash disposal, the regulation of infectious waste has been led by diverse states (Pennsylvania, Tennessee, Missouri, Rhode Island, Virginia) scattered throughout the country.

The change is only beginning.

The status of this change is important. Citizen interest in a new regulatory initiative expresses itself in new state laws or in amended regulations to existing programs. To develop new regulatory initiatives a prescribed set of steps must occur. To pass a new state law requires time . . . although in some states, such as New York, the time from introduction of a legislative initiative addressing infectious waste regulation to final implementation can be quite fast. The NY state infectious waste legislation was introduced in the spring of 1987 and signed into law in early fall. The first round of rules are to be in place by early 1988. Introduction of bills, hearings, negotiations and final signature by the governor requires an entire legislative session in most states. In some states, particularly in the South, the legislature meets for only three to four months and only every other year. This schedule discourages rapid change.

Amendments to existing state "protection of public health and safety" directives also require time for the regulatory agency to review existing requirements, identify other states where more stringent requirements have been adopted, and to work with the public and the potential regulated community as drafts work their way into the state's Code.

Yet in spite of the need to follow a defined number of steps mandated by legislative process and state Administrative Procedure Acts, the change in states' infectious waste programs demonstrates a rapid response by states to a recent public demand. In the last two years, the public has become aware of potential risks from pathologic wastes and in the last year state health and environmental agencies have started the process of improving their infectious waste regulatory structure.

Of those 25 states in the process of change, 66% are discussing internal drafts and 27% have introduced a proposed rule (Figure 2). To identify the progress of each state in this new regulation development, the CSG survey provided six alternative stages — internal discussions or drafts, draft for external review, public information meetings, proposed rule, public hearings on the proposed rule, and new rule being printed — for those who had answered positively to an earlier question on whether their state was in the process of change. The concentration of states at the internal draft stage demonstrates the newness of the states' efforts.

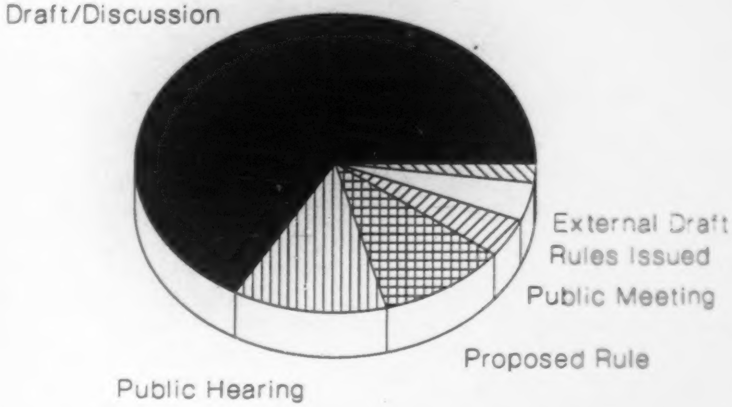
"In 1988, 88% of the states, compared to 57% of the states in 1986, are or will soon be regulating infectious wastes."

Evolving regulation is split between state environmental and public health agencies.

Infectious waste programs are not easily pigeon-holed in existing state regulatory structures. The CSG survey confirmed results in the 1986 USEPA Guidance which noted split jurisdiction in 11 states. The

Figure 2

Stages of State Changes



lead agencies are either the solid waste management authority or the hospital licensure bureau or both. When asked which agency had the enforcement lead, most states responded that the solid waste office covered the off-site disposal of the waste, the air control board handled incinerators, and the hospital licensure office monitored on-site generation, treatment, and disposal of infectious wastes. In a dozen states, enforcement was delegated by the state health department of either the county health departments (7) or to the Joint Commission on Accreditation of Healthcare Organizations (5).

Access for inspections divided between state agencies.

Inspections of off-site treatment and disposal facilities and on-site storage operations mesh well with the other responsibilities of the state's solid waste department. Stack emissions from incineration are regulated by the state's air office. Yet on-site generation and handling of infectious waste usually occurs in health care facilities where the state Health Department maintains jurisdiction.

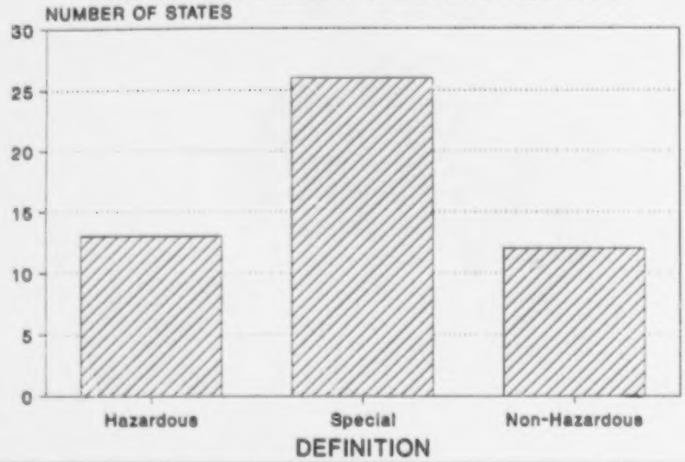
Because of this division in inspection responsibilities between two state agencies, there is question whether adequate cradle to grave monitoring can occur. The programs are still too new to identify any problems with enforcement.

Enforcement responsibilities are dependent on the lead agency.

Those programs under the offices of solid waste vary widely in enforcement strategies. For example, penalties for non-compliance range from civil fines of 0-$500/offense (NM) to criminal penalties of $50,000/offense or 20 years in jail (PA).

Figure 3

State Infectious Waste Definition



Programs located in the facilities licensure divisions of state health departments rely on licensure suspension as their primary enforcement tool. Health care facilities are expected to comply with guidelines covering best management practices to maintain their licenses. For that reason, guidelines in the infectious waste regulatory field could prove to be potent directives, though guidances, unlike regulations, do not have the power of law and can not be directly enforced.

Infectious Waste can be classified three different ways.

This waste stream was originally part of a state's hazardous waste program because wastes with infectious characteristics are included in USEPA's definition of hazardous wastes. In order to receive delegation for the federal hazardous waste program, states are required to adopt a regulatory program no less stringent than the federal government's. For that reason, the states initially incorporated USEPA's inclusion of infectious waste in their definition.

The current trend, however, is to delete infectious wastes from the states' hazardous waste programs and to create either a special wastes category or to include these wastes under the state's non-hazardous waste regulations (Figure 3).

When states were asked why they had elected to regulate infectious wastes as special wastes instead of hazardous wastes, the most common answer focused on the difficulty in delisting a hazardous waste after it had been treated. Hazardous wastes, when treated, must be submitted to a rule making (or delisting) before the wastes are considered non-hazardous. This is a cumbersome, time consuming and case-by-case procedure which potentially applies to any generator or disposer who treats (incinerates, autoclaves, disinfects, etc.) infectious waste either on- or off-site.

Many of the states' infectious waste regulations emphasize treatment that sterilizes the waste. For example, New Jersey's hospital licensure requirements state that "infectious waste must be rendered non-infectious at the point of origin." Since treatment of infectious waste (based on best management practices guidelines) renders the waste non-infectious (no longer hazardous under the EPA definition), most state agencies are proposing to handle the treated waste as non-hazardous. Seventy-five percent of the states surveyed included infectious waste under special or non-hazardous waste programs. In USEPA's 1986 guidance, fifty-three percent of the states listed their hazardous waste program as the primary framework for dealing with infectious wastes.

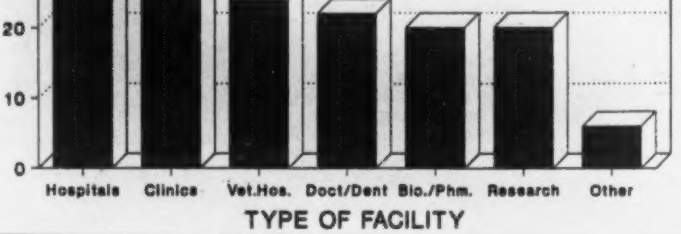
The majority of states identify hospitals as the target generator for regulation.

State programs, both in place and under development, focus on hospitals as the primary generator of infectious wastes. Three-quarters of those states that cover hospitals also include clinics as generators (Figure 4). Doctors and dentists offices, along with animal care facilities, were addressed by approximately half of the states that listed hospitals as generators.

The choice of defining the regulated universe by characteristic or by listing, or in a few cases, by a combination of the two, dictates the scope of generators covered. In those states which use or are considering the use of characteristics to define infectious wastes, all potential generators would be regulated unless expressly exempted. In contrast, states which rely on listing can more easily specify wastes from specific generators (pathological wastes from hospitals, blood and blood products discharged by dialysis units).

Figure 4

Who is Regulated?



Basing regulations on the class of generator, rather than the characteristics of the waste, can lead to some odd incongruities. For example, under Rhode Island's new regulations, wastes from animal research undertaken in a hospital may be regulated as infectious; but the same wastes generated at a university unaffiliated with a hospital would not be covered.

Emphasis on hospitals as generators may simply reflect anticipated volume. Five states, California, Indiana, Minnesota, Missouri, and Ohio, propose to or are currently recognizing small quantity generators as exempt from the state's policies or rules for infectious wastes. Nebraska has a unique statewide policy to exempt small townships from regulation.

Enforcement discretion may play a part in how this question was addressed. Law makers and the public have ranked risk from each of these sources differently, as evidenced by specific referrals to hospitals. Alabama and New Hampshire, for example, require incineration only of hospital infectious waste.

A third possibility is that this data may only reflect regulatory emphasis on hospitals (generators) for on-site handling of infectious wastes and a shift to monitoring the off-site treatment centers (TSDFs) for coverage of waste generated by offices and research centers.

Specifics of state changes demonstrate trend.

- Most states attempt to define infectious waste in their regulations (Table 1). Similar to hazardous waste regulation, states follow two approaches in defining the wastes covered by their infectious waste regulations. Some states utilize a definition based on the characteristics of infectious waste (an etiological agent of human illness), while some list wastes that are considered to be infectious (isolation wastes, cultures of organisms, blood and blood products, pathological wastes, etc). In the latter case, the majority have relied on USEPA's list in the Agency's Infectious Waste Guidance to define their program's universe.
- Permits are not the choice of infectious waste regulators. When they are required, the permit is issued by the state's environmental agency (either to the solid waste or air program or to both) and usually applies to an off-site disposal facility. Table 2 shows which states answered CSG's survey affirmatively about permits. There may be other states that require treatment, storage, or disposal (TSD) permits under their air, hazardous and solid waste laws which could apply to infectious wastes. For example, the District of Columbia, Hawaii, Iowa, Kentucky, Maine, and Washington regulate infectious wastes as hazardous wastes. In these states' hazardous waste programs TSD permits may be required.
- On-site handling of infectious wastes is usually governed by state health department guidances. The Joint Commission for Accreditation of Healthcare Organizations, the Center for Disease Control, the U.S. Environmental Protection Agency, the Occupational Safety and Health Administration, and the National Institutes of Health periodically issue recommendations for biosafety that have been used by state health departments to develop these guidances.
- Thirty-one states single out packaging/labeling requirements to be included in their infectious waste rules (Table 3). Packaging is a key to minimizing waste generator and handler exposure. Rigid containers, double bagging, and labeling requirements are elements that are already required in 14 states and may be required in 17 additional states (Table 3).

In the last year, waste haulers (and their associations) have focused on the protection from SHARPS as the key infectious waste issue in their industry. Changes in the state programs reflect this worker safety issue by recognizing the need for containing needles, scalpels,

> ***"Permits are not the choice of infectious waste regulators."***

and broken glass contaminated with pathogens in unbreakable, puncture-proof vessels.

- Storage facility specifications, including the length of time wastes can be maintained on-site, are likely improvements as states modify their programs. Seven states (CA, MA, NH, OR, PA, RI, TN) currently have specific storage requirements for infectious wastes. Twice that many are considering including such elements in their upgraded regulations (Table 3).
- Transportation and record keeping requirements have been included or are being examined by 3/5 of the states. These include designating non-compacting trucks as the only acceptable transport vehicle, requiring labeling of the transport truck, delineating procedures to clean the vehicle after use and specifying types of shipping papers required. If reports are addressed, the trend is to require the generator to maintain records on-site, not to submit manifests to the state regulatory agencies.
- A clear majority (72%) name incineration as a recommended treatment under existing or proposed regulations (Table 4). In a handful of states (AL, AK, CO, NH, TN) incineration is required. Of those states that recommend incineration, 23 are considering establishing performance standards. State air control agencies may have standards set that are not specific for infectious waste feedstocks, but still cover the incinerator's performance.

When asked about recommended methods for treatment and disposal, 56% of those responding have already, or are considering, requiring pretreatment before land disposal (Table 5). As was mentioned earlier, many states no longer define waste as infectious once appropriate treatment has been done.

Twenty-seven states, or 53%, recommend steam sterilization for treatment of infectious wastes. Fourteen of the 27 states specify or are considering specifying, time/temperature/pressure standards.

Eighteen states include chemical treatment as an alternative. Other states approve methods of treatment on a case-by-case basis.

- Under some conditions, at least twelve states allow land disposal of infectious waste without treatment.
- Unlike state hazardous waste laws, three requirements are not included routinely in a state's upgrading of its infectious waste program: requirements for contingency plans/spill management, closures, and financial assurances.

Contingency plans contain actions that should be undertaken when a spill of an infectious waste occurs. For example in the state's 11-2-87 external draft, Virginia has effectively taken the responsibility of producing a contingency plan that would apply to spills regardless of location. Virginia's spill management section specifies that all infectious waste management facilities are required to keep "a spill containment and cleanup kit within one hundred feet of any area where infectious wastes are managed," delineates the contents of the kit and lists containment and clean up procedures. Other states such as California may direct the generator to write a contingency plan for the state agency's review.

Closure requirements apply to that period when wastes are no longer accepted and the facility is in the process of decontaminating and ultimately shutting down the operation. Post closure (applies to disposal facilities) covers a specified number of years after closure when owners/operators must maintain and monitor the site. Six states (AR, CA, NH, OK, PA, TN, TX, WS) listed closure requirements in their infectious waste regulations.

Financial assurances provide that owners/operators must be fiscally responsible for closing a facility, for rendering post closure care at disposal facilities, and for compensating third parties for bodily injury and property damage caused by sudden and non-sudden accidents related to the facilities operation. Financial requirements include both assurances for adequate funding for closure/post closure and liability

"A clear majority (72%) name incineration as a recommended treatment under existing or proposed regulations."

coverage for injury and property damage. Only four states (CA, OK, PA, WS) listed financial assurance requirements in place. Eight additional states are considering including such requirements in their updated programs.

In summary, the trend is clear. Regardless of federal activity in this new field, states have decided to address infectious wastes. These new state regulatory programs are unique in their jurisdictional overlap between state environmental agencies and health departments. Moreover, because of limited staff and money, the evolving regulations are designed to be self-enforcing. Best management practices (emphasizing biosafety), liability issues, and haulers' refusals to handle red-bagged wastes are recognized and depended upon as strong voluntary compliance inducements. ☐

Recent Legislative Actions

During the current (January-March 1988) sessions of state legislatures, many infectious waste bills have been introduced. The following list is a summary of some of these bills. The list is not comprehensive, and does not necessarily portray the final resolution of the bill. It does, however, give an indication of some of the current state activity.

State	Bill
SC	Imposes a tax on the incineration and disposition of infectious wastes. Introduced 2-3-88.
RI	Solid waste management and infectious waste. Introduced 2-24-88.
NJ	Provides for regulation of infectious waste. Introduced 2-22-88.
NY	Requires prior notice of increase in infectious waste treated, stored, or disposed of at a state-owned facility. Introduced 3-9-88.
MD	Requires creation of a Task Force to study aspects of infectious wastes. Introduced 2-26-88.
MA	Authorizes study of infectious waste laws.
MO	Infectious waste regulation changes and additions (several bills).
NJ	Establishes manifest system and liability for medical wastes. Introduced 1-12-88.
TN	Enacts "Infectious Waste Disposal Act." Introduced 2-2-88.
NJ	Provides for regulation of infectious waste. Introduced 3-21-88.

Data supplied courtesy of the American Paper Institute, Inc.

Table 1
Infectious Waste Definitions

State	Defines Infectious Waste	Lists Isolated Wastes	Cultures of Organisms	Blood/ Blood Products	Pathological Wastes	Sharps (Needles, etc.)	Animal Carcasses	Other
ALABAMA								
ALASKA	R				R			
ARIZONA								
ARKANSAS	R	R	R	R	R	R		
CALIFORNIA	R	R	R	R	R	R	R	R
COLORADO	U	U	U	U	U	U	U	
CONNECTICUT	U	U	U	U	U	U	U	U
DELAWARE	U	U	U	U	U	U	U	
D.C.	U						U	
FLORIDA	R	R	R	R	R	R	U	
GEORGIA								
HAWAII								
IDAHO								
ILLINOIS	R	R	R	R	R	R	R	R
INDIANA	U	U		U	U	U	U	
IOWA								
KANSAS	R		R	R	R	R	R	
KENTUCKY	R	R	R	R	R	R	R	
LOUISIANA	R	U	U	U	U	U	U	
MAINE	U	U	U	U	U	U	U	
MARYLAND	R	R	R	R	R	R	U	
MASSACHUSETTS	R							
MICHIGAN								
MINNESOTA	R	R	R		R	U		R
MISSISSIPPI								
MISSOURI (1)	U*	U*	U*	U*	U*	U*	U*	
MONTANA								
NEBRASKA	R	R	U	U	U	U	U	
NEVADA			R	R		R		R
NEW HAMPSHIRE	R	R	R	R	R	R	R	R
NEW JERSEY	R	U	R	U	R	R	U	
NEW MEXICO	U	U	U	U	U	U	U	
NEW YORK	U	U	U	U	U	U	U	U
NORTH CAROLINA	R		R	R	R			
NORTH DAKOTA	U	U	R	U	U	R		R
OHIO	U	U	U	U	U	U	U	
OKLAHOMA								
OREGON	U		U	U	U	U	U	U
PENNSYLVANIA	R	R	R	R	R	R	R	R
RHODE ISLAND		R	R	R	R	R	R	
SOUTH CAROLINA	U	U	U	U	U	U	U	
SOUTH DAKOTA								
TENNESSEE	R	R	R	R	R	R	R	
TEXAS	R		U	U	U	U	U	
UTAH (2)								
VERMONT	R							
VIRGINIA	U	U	U	U	U	U	U	U
WASHINGTON								
WEST VIRGINIA	U	U	U	U	U	U	U	U
WISCONSIN	U							
WYOMING								

NOTES
(1) Regulations scheduled to be published 3/25/88 will change these "U*"s to "R"s
(2) Legislation passed on February 24, 1988, authorizes a Statutory Committee to develop regulations

KEY TO TABLE
R = Regulation in place
U = Under consideration as regulations are upgraded
Blank = Not regulated by state and not under consideration

Table 2
Activities Requiring Permits

State	Requires Permit For:	Treatment	Storage	Transport	Disposal	Emergency	Research and/or Development
ALABAMA							
ALASKA							
ARIZONA							
ARKANSAS							
CALIFORNIA		R	R	R	R		
COLORADO		U	U	U		U	U
CONNECTICUT		U	U	U	U		
DELAWARE		U	U	U	U		
D.C.							
FLORIDA (1)				U			
GEORGIA							
HAWAII							
IDAHO							
ILLINOIS				R	R		
INDIANA			U	U			
IOWA							
KANSAS					R		
KENTUCKY							
LOUISIANA		U	U	U	U	U	U
MAINE		U	U	U	U		
MARYLAND							
MASSACHUSETTS		R	R	R	R	U	U
MICHIGAN							
MINNESOTA							
MISSISSIPPI							
MISSOURI (2)		U	U	U*	U		
MONTANA							
NEBRASKA					R		
NEVADA							
NEW HAMPSHIRE		R	R		R		
NEW JERSEY		U	U	U	R	U	U
NEW MEXICO				U	U		
NEW YORK		R	R	R	R		
NORTH CAROLINA		R			R		
NORTH DAKOTA							
OHIO		U			U		U
OKLAHOMA		R	R		R		
OREGON							
PENNSYLVANIA		R			R		R
RHODE ISLAND			R	R	R		
SOUTH CAROLINA		U	U	U	U		
SOUTH DAKOTA							
TENNESSEE		R	R	R	R	R	
TEXAS					U		
UTAH							
VERMONT			R	R	R		
VIRGINIA		U	U	U	U	U	U
WASHINGTON							
WEST VIRGINIA							
WISCONSIN					R		
WYOMING							

NOTES
(1) Florida requires incinerator permits for infectious wastes.
(2) In addition to proposed transport permits, Missouri currently requires a license for transport. Regulations scheduled to be published 3/25/88 will change these "U*"s to "R"s.

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Table 3
Regulated Activities

State	Financial Assurances	Spill Management	Closure Requirements	Packaging & Labeling Requirements	Storage Facilities	Record Keeping Requirements	Transportation Requirements
ALABAMA							
ALASKA				R			
ARIZONA							
ARKANSAS			R		R		
CALIFORNIA	R	R	R	R	R		R
COLORADO	U	U		U	U	U	
CONNECTICUT		U		U	U	U	U
DELAWARE				U	U	U	U
D.C.							
FLORIDA	U	U	U	R	U	U	U
GEORGIA				R			
HAWAII							
IDAHO							
ILLINOIS						R	R
INDIANA	U		U		U	U	
IOWA							
KANSAS				R		R	
KENTUCKY							
LOUISIANA	U	U	U	U	U	U	U
MAINE		U		U	U	U	U
MARYLAND				U		U	
MASSACHUSETTS		U		R	R		R
MICHIGAN							
MINNESOTA				U	U		U
MISSISSIPPI				R			
MISSOURI (1)	U*	R		U*	U	U	R
MONTANA							
NEBRASKA				R			
NEVADA				R			
NEW HAMPSHIRE		R	R		R	R	R
NEW JERSEY	U	U	U	R	U	U	U
NEW MEXICO			U	U		U	U
NEW YORK	U	U		U	U	U	R
NORTH CAROLINA							
NORTH DAKOTA		U		R	R		R
OHIO				U		U	U
OKLAHOMA	R		R			R	R
OREGON		U		U	R		
PENNSYLVANIA	R	R	R	R	R	R	R
RHODE ISLAND				R	R	R	R
SOUTH CAROLINA				U	U	U	U
SOUTH DAKOTA							
TENNESSEE		R	R	R	R	R	R
TEXAS			R	R		U	U
UTAH				U			
VERMONT		R				R	R
VIRGINIA	U	U	U	U	U	U	U
WASHINGTON							
WEST VIRGINIA				U	U	U	U
WISCONSIN	R	R	R				
WYOMING							

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Table 4
Methods of Treatment and Disposal: Part I

te	Incineration	Specifies Ash Control	Specifies Performance Standards	Steam Sterilization	Specified Time/Temperature Pressure
ABAMA	R				
ASKA	R				
IZONA					
KANSAS	R			R	R
LIFORNIA					
LORADO		U	U	U	U
NNECTICUT	U	U	U	U	
LAWARE	U	U	U	U	U
.	U		U		
ORIDA	R		U	R	U
ORGIA	R				
WAII					
HO					
INOIS	R	R	R	R	R
IANA	R	R	R		
VA					
NSAS	R	R	R	R	
NTUCKY	R			R	
JISIANA	U	U	U	U	U
INE	U		R	U	
RYLAND	U			U	
SSACHUSETTS					
CHIGAN					
NNESOTA	R			R	
SISSIPPI	R				
SOURI (1)	U*	U*	U*	U*	U*
NTANA					
BRASKA	R				
ADA					
V HAMPSHIRE	R	R	R	R	
V JERSEY	R	R	R	U	U
V MEXICO			U		
V YORK	R		R	R	R
RTH CAROLINA	R	R		R	
RTH DAKOTA	R		R		
O	R	U	U	U	U
LAHOMA	R	R	R		
EGON	U	U	U	U	U
NSYLVANIA	R	R	R	R	
DDE ISLAND	R			R	
JTH CAROLINA	U	U		U	U
JTH DAKOTA					
NESSEE	R	R	R	R	R
AS	U				
H					
RMONT					
GINIA	U	U	U	U	
SHINGTON	R				
ST VIRGINIA	U		U	U	U
CONSIN	R	R	R	U	
OMING					

…lations scheduled to be published 3/25/88 will change these "U"s to "R"s

…TABLE
…gulation in place
…der consideration as regulations are updated
… Not regulated by state and not under consideration

Table 5
Methods of Treatment and Disposal: Part II

State	Chemical Treatment	Pretreatment Before Landfilled	Double Bagged
ALABAMA			
ALASKA		R	
ARIZONA			
ARKANSAS	R		R
CALIFORNIA			
COLORADO	U		
CONNECTICUT	U	U	U
DELAWARE	U	U	U
D.C.			
FLORIDA	U	R	U
GEORGIA			
HAWAII			
IDAHO			
ILLINOIS	R	R	
INDIANA		U	
IOWA			
KANSAS		R	R
KENTUCKY			
LOUISIANA	U	U	U
MAINE		U	
MARYLAND	U	U	U
MASSACHUSETTS			
MICHIGAN			
MINNESOTA		R	
MISSISSIPPI		R	
MISSOURI	U	R	
MONTANA			
NEBRASKA			
NEVADA		R	R
NEW HAMPSHIRE	R	R	R
NEW JERSEY	U	R	R
NEW MEXICO	U	U	U
NEW YORK		R	U
NORTH CAROLINA		R	
NORTH DAKOTA			
OHIO	U	U	U
OKLAHOMA			
OREGON	U	U	U
PENNSYLVANIA	R	R	R
RHODE ISLAND		R	
SOUTH CAROLINA	U	U	U
SOUTH DAKOTA			
TENNESSEE	R	R	R
TEXAS	U	U	R
UTAH			
VERMONT			
VIRGINIA		U	
WASHINGTON			
WEST VIRGINIA		U	U
WISCONSIN	U		
WYOMING			

KEY TO TABLE
R = Regulation in place
U = Under consideration as regulations are upgraded
Blank = Not regulated by state and not under consideration

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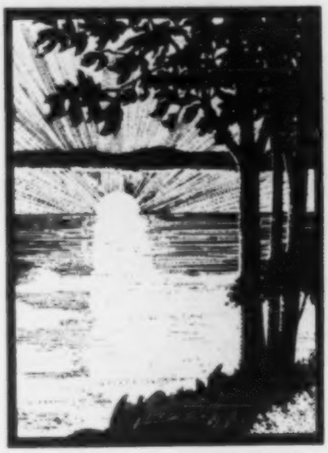

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TESTIMONY OF

SERVICE EMPLOYEES INTERNATIONAL UNION, AFL-CIO, CLC

BEFORE

THE HONORABLE RON WYDEN
CHAIR
SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES
OF THE COMMITTEE ON SMALL BUSINESS
US HOUSE OF REPRESENTATIVES

ON

BIOMEDICAL WASTE HANDLING

August 9, 1988

SUBMITTED BY:

BILL BORWEGEN
DIRECTOR
OCCUPATIONAL HEALTH AND SAFETY DEPARTMENT
SERVICE EMPLOYEES INTERNATIONAL UNION
AFL-CIO, CLC

GOOD MORNING, MY NAME IS BILL BORWEGEN, AN INDUSTRIAL HYGIENIST AND DIRECTOR OF OCCUPATIONAL HEALTH AND SAFETY FOR THE SERVICE EMPLOYEES INTERNATIONAL UNION, AFL-CIO, CLC.

SEIU REPRESENTS 850,000 PUBLIC AND PRIVATE SECTOR WORKERS. WE ARE ONE OF THE LARGEST UNIONS IN THE AFL-CIO AND THE LARGEST UNION OF HEALTHCARE WORKERS. A THIRD OF OUR MEMBERS ARE HEALTHCARE WORKERS AND MANY ARE EXPOSED TO POTENTIALLY-INFECTIOUS WASTE MATERIAL CONTAMINATED WITH BLOOD AND BODILY FLUIDS ON A REGULAR BASIS. FOR EXAMPLE, A REGISTERED NURSE INJECTS A PATIENT WITH HIS OR HER MEDICATION, THUS CREATING INFECTIOUS WASTE IN THE FORM OF A NEEDLE THAT CAN LATER STICK A LAUNDRY WORKER OR HOUSEKEEPING WORKER. TO THE WORKER IN THE HOSPITAL WHO RUNS THE INCINERATOR THAT BURNS SUCH INFECTIOUS WASTE. IN RECENT MONTHS AN SEIU NURSE IN BOSTON WAS STUCK BY A NEEDLE FROM SOMEONE SHE SUSPECTED HAS AIDS, BUT THE PATIENT REFUSED TO BE TESTED. NOT KNOWING, SHE WAS FACED WITH OVERWHELMING ANXIETY. WE ALSO REPRESENT NONHEALTHCARE WORKERS, SUCH AS JANITORS, POLICE OFFICERS, CORRECTIONAL OFFICERS, AND PARK WORKERS WITH DOCUMENTED OCCUPATIONAL EXPOSURES FROM DISCARDED I-V DRUG-USER NEEDLES, EXPOSURE TO INFECTIOUS WASTES FROM INMATES, AND MANY OTHER SOURCES. FOR EXAMPLE, AN SEIU JANITOR AT SAN FRANCISCO INTERNATIONAL AIRPORT, WHILE COMPACTING RESTROOM TRASH WITH HIS HANDS, STUCK HIMSELF WITH A DISCARDED I-V DRUG-USER NEEDLE. AND A PRISON GUARD WAS BITTEN BY AN INMATE WHO WAS INFECTED WITH THE AIDS VIRUS.

ON BEHALF OF THESE WORKERS, I WOULD LIKE TO THANK THE CHAIRMAN AND THIS COMMITTEE FOR ALLOWING ME THIS OPPORTUNITY TO TESTIFY TODAY. THIS COMMITTEE IS PRESENTED WITH A UNIQUE OPPORTUNITY TO PROTECT WORKERS AND THE GENERAL PUBLIC

BY INSURING THE PROPER HANDLING AND DISPOSAL OF POTENTIALLY INFECTIOUS WASTE PRODUCTS. WE HOPE THAT OUR COMMENTS TODAY HELP THE COMMITTEE IN MEETING THIS CHALLENGE.

SPECIFICALLY, I SPEAK TODAY IN SUPPORT OF A STRONG REGULATORY AND ENFORCEMENT EFFORT TO PROTECT WORKERS AND THE PUBLIC FROM EXPOSURE TO INFECTIOUS WASTE. HISTORICALLY, THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION HAS LEFT THE HEALTHCARE INDUSTRY FREE TO REGULATE ITSELF. THE ENVIRONMENTAL PROTECTION AGENCY HAS SOME REGULATIONS, BUT ENFORCEMENT, QUITE FRANKLY, IS ALMOST NONEXISTENT. IF INDUSTRY WAS PURSUING AGGRESSIVE VOLUNTARY EFFORTS AT REGULATION, WE WOULD NOT HAVE TO BE HERE TODAY. THE CONDITIONS NEEDED TO JUSTIFY QUICK ACTION BY THE FEDERAL GOVERNMENT TO PROMULGATE APPROPRIATE REGULATIONS BACKED UP BY ENFORCEMENT ARE PRESENT. EXPOSURE TO INFECTIOUS WASTE PRODUCTS POSE A SIGNIFICANT HEALTH HAZARD TO WORKERS AND THE GENERAL PUBLIC.

JUST HOW SIGNIFICANT A THREAT IS POSED WAS MORE COMPLETELY REALIZED BY OUR UNION IN 1984 WHEN FEAR OF AIDS' TRANSMISSION FIRST AROSE IN OUR MEMBERSHIP. TO ASSURE THAT HEALTHCARE WORKERS AND OTHERS WITH EXPOSURE TO INFECTIOUS WASTE WOULD BE ABLE TO CONTINUE TO PROVIDE CARE TO PATIENTS AND OTHERS, IT WAS CRITICAL THAT IRRATIONAL FEAR BE CONFRONTED WITH FACTUAL INFORMATION AND THAT ADEQUATE SAFETY PRECAUTIONS BE IMPLEMENTED.

OUR BACKGROUND RESEARCH SHOWED US THAT THE MODE OF TRANSMISSION OF THE AIDS VIRUS IS SIMILAR TO THAT OF HEPATITIS B--AN OCCUPATIONAL ILLNESS REFERRED TO AS "HEALTHCARE WORKERS' DISEASE". IT IS CAUSED PRIMARILY BY NEEDLESTICKS, CUTS AND OTHER EXPOSURES TO NONINTACT SKIN AND MUCOUS MEMBRANES. WHILE WE MAY

SPECULATE AND THEORIZE REGARDING THE PROBABILITY OF DEVELOPING HEPATITIS B OR AIDS FROM A SYRINGE WASHED UP ON THE SHORELINE OF NEW YORK AND NEW JERSEY, THE US CENTERS FOR DISEASE CONTROL ALREADY HAS STATED THAT EVERY YEAR UP TO 15,000 HEALTHCARE WORKERS CONTRACT, AND ANOTHER 200-300 DIE FROM, HEPATITIS B CAUSED FROM SUCH EXPOSURES TO INFECTIOUS WASTE. IN ADDITION TO CONTRACTING THE AIDS VIRUS, STUDIES HAVE DOCUMENTED THE TRANSMISSION OF AT LEAST AN ADDITIONAL 18 DIFFERENT PATHOGENS BY NEEDLESTICK INJURIES. CLEARLY, THIS IS THE DEADLY EVIDENCE TO PROVE THAT COMPREHENSIVE INFECTIOUS WASTE HANDLING AND DISPOSAL PROCEDURES ARE NOT IN PLACE IN THIS COUNTRY.

OUR FIRST STEP TO REDUCE THIS MORBIDITY AND MORTALITY EXPERIENCED BY WORKERS EXPOSED TO INFECTIOUS WASTE, AS WELL AS DEAL WITH THE EPIDEMIC OF FEAR CAUSED BY AIDS, WAS TO PRODUCE SOME OF THE FOREMOST EDUCATIONAL MATERIALS IN THE COUNTRY FOR WORKERS: A BROCHURE, AIDS AND THE HEALTHCARE WORKER, 500,000 OF WHICH HAVE NOW BEEN DISTRIBUTED, AND OUR COMPREHENSIVE 96-PAGE THE AIDS BOOK--INFORMATION FOR WORKERS, ACCLAIMED BY THE CENTERS FOR DISEASE CONTROL AS THE "BEST EDUCATIONAL MATERIAL FOR WORKERS," WHICH HAS BEEN DISTRIBUTED IN THE TENS OF THOUSANDS TO STATE AND LOCAL HEALTH DEPARTMENTS AND HUNDREDS OF HEALTHCARE INSTITUTIONS. COPIES OF BOTH PUBLICATIONS ARE INCLUDED IN THE MATERIALS I AM SUBMITTING TODAY.

IN ADDITION, WE HAVE CONDUCTED SCORES OF SEMINARS FROM COAST-TO-COAST, TRAINING THOUSANDS OF HEALTHCARE AND OTHER WORKERS. HOWEVER, OUR EDUCATIONAL EFFORTS HAVE ONLY SERVED TO REINFORCE THE FINDINGS OF OUR ORIGINAL RESEARCH, CONVINCING US THAT OTHER CRITICAL ACTIONS MUST BE TAKEN NOW IN ADDITION TO EDUCATIONAL

EFFORTS TO ADEQUATELY PROTECT WORKERS FROM OCCUPATIONAL EXPOSURES TO POTENTIALLY-INFECTIOUS WASTE.

BECAUSE OF THE LIMITATIONS OF REGULATORY AUTHORITIES, IT IS CLEAR TO US THAT NO SINGLE FEDERAL AGENCY CAN ADEQUATELY DEAL WITH ALL THE ISSUES INVOLVED IN THE PROPER HANDLING AND DISPOSAL OF INFECTIOUS WASTE. HOWEVER, WE BELIEVE THAT THREE AGENCIES, SPECIFICALLY, *THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, THE US ENVIRONMENTAL PROTECTION AGENCY, AND THE FOOD AND DRUG ADMINISTRATION*, WITH THE PROPER COMMITMENT COULD WORK TOGETHER AND BE SUCCESSFUL IN DEVELOPING A COMPREHENSIVE APPROACH TO SOLVING THIS NATIONWIDE CRISIS. LET ME NOW SUMMARIZE THE RESPONSIBILITIES THAT I BELIEVE THAT EACH OF THESE AGENCIES MUST ASSUME:

FIRST, THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION MUST ISSUE A PERMANENT STANDARD TO PROTECT HEALTHCARE AND OTHER WORKERS WHEN DEALING WITH INFECTIOUS WASTE IN THE WORKPLACE. IN THIS VEIN, IN SEPTEMBER 1986, OUR UNION PETITIONED OSHA FOR SUCH A STANDARD. THIS PETITION SPECIFIED THE TYPES OF TRAINING AND PROTECTIVE EQUIPMENT HEALTHCARE WORKERS NEED. IT ALSO REQUESTED THAT THE HEPATITIS B VACCINE BE MADE AVAILABLE TO ALL HIGH-RISK WORKERS FREE-OF-CHARGE. THE NEED FOR A PERMANENT STANDARD HAS BEEN ENDORSED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, AMERICAN OCCUPATIONAL HEALTH NURSES ASSOCIATION, AND OTHER ORGANIZATIONS.

LAST SUMMER, OSHA AGREED TO BEGIN THE STANDARD-SETTING PROCESS AND ISSUED AN ADVANCED NOTICE OF PROPOSED RULEMAKING TO ANNOUNCE THE AGENCY'S INTENTIONS AND SOLICIT COMMENTS FROM INTERESTED PARTIES. TO ASSIST OSHA IN THIS PROCESS, SEIU

CONDUCTED A SURVEY OF INFECTIOUS DISEASE CONTROL PRACTICES WITHIN 100 DEPARTMENTS IN HEALTHCARE AND OTHER INSTITUTIONS LOCATED IN THIRTEEN STATES AND 55 MAJOR METROPOLITAN AREAS.

I AM PROVIDING THE COMMITTEE WITH A COPY OF OUR SURVEY RESULTS AS SUBMITTED TO OSHA AND OUR RECOMMENDATIONS FOR WHAT WE BELIEVE SHOULD BE INCLUDED IN A PERMANENT OSHA STANDARD.

ONE OF THE MORE SIGNIFICANT FINDINGS IN OUR SURVEY THAT WE WOULD LIKE TO BRING TO THE COMMITTEE'S ATTENTION IS THE COMPARISON BETWEEN WHICH OCCUPATIONS WERE MOST LIKELY TO RECEIVE TRAINING AND PROTECTIVE EQUIPMENT AND WHICH OCCUPATIONS WERE MOST LIKELY TO HAVE CONTACT WITH WASTES CONTAMINATED WITH BLOOD AND BODILY FLUIDS, SUCH AS NEEDLES AND OTHER SHARPS.

WE FOUND THAT WHILE 75% OF THE REGISTERED NURSES IN THE FACILITIES SURVEYED HAD RECEIVED INFECTIOUS DISEASE CONTROL TRAINING, ONLY 55% OF THE NURSES AIDES AND 35% OF LAUNDRY WORKERS HAD RECEIVED SUCH TRAINING. REGARDING PROVISION OF THE HEPATITIS B VACCINE, WHILE TWO-THIRDS OF DEPARTMENTS SURVEYED MADE THEM AVAILABLE TO REGISTERED NURSES, THE VACCINE WAS PROVIDED ONLY TO 40% OF NURSES AIDS, 40% OF MAINTENANCE WORKERS, AND 27% OF HOUSEKEEPING PERSONNEL.

YET, IN AT LEAST ONE STUDY OF NEEDLESTICK INCIDENTS PUBLISHED IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, THE HIGHEST INCIDENCE RATES OF INJURIES--127 PER THOUSAND WORKERS--WAS FOUND AMONG HOUSEKEEPING PERSONNEL, HIGHER THAN THE RATE OF 104.7 PER THOUSAND FOR LABORATORY PERSONNEL, AND OF 92.6 PER THOUSAND FOR REGISTERED NURSES.

THIS COMMITTEE COULD PROVIDE INVALUABLE ASSISTANCE TO MY UNION, OTHER ORGANIZATIONS, AND MILLIONS OF INDIVIDUAL HEALTHCARE WORKERS WHO ARE FIGHTING FOR ADEQUATE WORKSITE PROTECTION AGAINST INFECTIOUS DISEASE WASTE BY INSISTING THAT OSHA PROCEED EXPEDITIOUSLY TO MEET THEIR CURRENT DEADLINE OF A PROPOSED RULE BY THE END OF THIS YEAR, TO BE FOLLOWED SHORTLY THEREAFTER BY A PERMANENT STANDARD. THE COOPERATION OF THE OFFICE OF MANAGEMENT AND BUDGET IN PUTTING THIS REVIEW OF OSHA'S RULE ON A FAST TRACK IS ESSENTIAL TO THE SUCCESS OF THIS EFFORT.

HOWEVER, ACTIONS BY OTHER FEDERAL AGENCIES WILL STILL BE NECESSARY. PASSAGE OF THE OCCUPATIONAL SAFETY AND HEALTH ACT IN 1970 SPECIFICALLY EXEMPTED STATE AND MUNICIPAL EMPLOYEES FROM THE COVERAGE THAT WAS PROVIDED TO ALL OTHER AMERICAN WORKERS. AND ONLY HALF OF THE STATES IN THE COUNTRY HAVE CHOSEN TO VOLUNTARILY CONFER SIMILAR OSHA PROTECTIONS TO THESE WORKERS. AS A CONSEQUENCE, MILLIONS OF PUBLIC EMPLOYEES IN HALF OF THE STATES IN THIS COUNTRY ARE COVERED NEITHER BY OSHA NOR BY A STATE-RUN OSHA TYPE PROGRAM. FOR THESE WORKERS, THEY HAVE NO LEGAL RIGHT TO A WORKPLACE FREE FROM RECOGNIZED HEALTH AND SAFETY HAZARDS.

TO ADDRESS THIS SITUATION AT LEAST TO PROTECT SCHOOL WORKERS AND CHILDREN FROM ASBESTOS HAZARDS, OUR UNION IN 1983 PETITIONED AND LATER SUED THE ENVIRONMENTAL PROTECTION AGENCY TO ISSUE SUCH RULES UNDER THE TOXIC SUBSTANCES CONTROL ACT. AS A PARTIAL SETTLEMENT TO THIS LAWSUIT, THE EPA CHOSE TO COVER THESE UNPROTECTED PUBLIC EMPLOYEES THROUGH WHAT IS KNOWN AS THEIR "ASBESTOS WORKER

PROTECTION RULE". THE RULE CONFERS THE OSHA ASBESTOS STANDARD TO PUBLIC EMPLOYEES EXPOSED TO ASBESTOS, BUT IS ENFORCED BY EPA INSTEAD OF OSHA.

WE BELIEVE INFECTIOUS WASTE HANDLING AND DISPOSAL REPRESENTS AN ANALOGOUS SITUATION UNDER WHICH THE EPA NOT ONLY SHOULD, BUT IS LEGALLY REQUIRED TO, ACT TO PROTECT THESE MILLIONS OF UNPROTECTED STATE AND MUNICIPAL EMPLOYEES. WE KNOW, FOR INSTANCE, THAT A DECADE AGO, EPA PROPOSED TO REGULATE BIOMEDICAL INFECTIOUS WASTE PURSUANT TO ITS AUTHORITY UNDER THE RESOURCE CONSERVATION RECOVERY ACT ("RCRA"). IN DECEMBER OF 1978, THE AGENCY PUBLISHED PROPOSED REGULATIONS IN THE FEDERAL REGISTER. TEN YEARS LATER THERE ARE IN FACT NO REGULATIONS. AGAIN, JUST AS THE EPA CONFERRED THE OSHA ASBESTOS STANDARD TO UNCOVERED PUBLIC EMPLOYEES, WE BELIEVE THE EPA MUST ACT USING AUTHORITIES UNDER TSCA, RCRA, OR BOTH, TO IMMEDIATELY CONFER THE CENTERS FOR DISEASE CONTROL INFECTIOUS DISEASE CONTROL GUIDELINES TO THESE WORKERS, AND THEN EVENTUALLY THE PERMANENT OSHA INFECTIOUS DISEASE STANDARD ONCE IT HAS BEEN ISSUED.

FINALLY, THE THIRD AGENCY THAT WE BELIEVE HAS A CRITICAL ROLE TO PLAY TO PROTECT BOTH WORKERS AND THE PUBLIC IS THE US FOOD AND DRUG ADMINISTRATION. STUDIES HAVE SHOWN THAT THE LEADING CAUSE OF HEPATITIS B AND HIV SEROCONVERSION AMONG HEALTHCARE AND OTHER WORKERS IS FROM NEEDLESTICK INJURIES. JUST THIS PAST WEEK IN THE NEW ENGLAND JOURNAL OF MEDICINE, A STUDY WAS PUBLISHED HIGHLIGHTING THE IMPORTANCE OF IMPROVED NEEDLE DESIGN, AND ESPECIALLY SELF-SHEATHING NEEDLES, IN REDUCING SUCH INJURIES TO WORKERS AND OTHERS.

DR. JANINE JAGGER AND ASSOCIATES AT THE UNIVERSITY OF VIRGINIA STUDIED OVER 300 NEEDLESTICKS AND FOUND THAT THESE INJURIES WERE CAUSED NOT ONLY BY THE TYPICAL

DISPOSABLE SYRINGES, BUT BY I-V NEEDLE ASSEMBLIES, PREFILLED CARTRIDGE SYRINGES, AND A HOST OF OTHER DEVICES. ONLY 17 PERCENT OF THE INCIDENTS OCCURRED DURING THE USE OF THE ITEM. THE REMAINDER OF THE INCIDENTS OCCURRED WHEN THE NEEDLES WERE BEING PREPARED FOR DISPOSAL (70%) OR DURING OTHER DISPOSAL (13%). DR. JAGGER HAS CONCLUDED THAT REDESIGNED NEEDLES COULD GREATLY REDUCE THE RATES OF THESE INJURIES.

THEREFORE, WE URGE THE FOOD AND DRUG ADMINISTRATION UNDER ITS MEDICAL DEVICE REGULATIONS TO STUDY AND REQUIRE THE MANUFACTURE OF SAFER NEEDLE DESIGNS TO REDUCE THE LEADING MODE OF TRANSMISSION OF BLOOD-BORNE INFECTIOUS DISEASES.

IT IS SAID THAT AIDS CAN BE PREVENTED EXCLUSIVELY THROUGH VOLUNTARY ACTIONS--AND FOR THE SO-CALLED HIGH RISK GROUPS SUCH AS I-V DRUG USERS, HOMOSEXUALS AND PROMISCUOUS HETEROSEXUALS--THIS IS TRUE. HOWEVER, FOR OUR NATION'S FIVE MILLION HEALTHCARE WORKERS AND MANY MORE MILLIONS OF OTHER WORKERS AT POTENTIAL RISK, THEY HAVE NO CHOICE AND ARE BEING INVOLUNTARILY EXPOSED TO BLOODBORNE DISEASES AS THEY STRUGGLE TO EARN A LIVING AND A PAYCHECK. THIS IS ONE AREA WHERE GOVERNMENT REGULATION CAN HAVE A SIGNIFICANT IMPACT IN STEMMING THE MORBIDITY AND MORTALITY CAUSED BY THE NATIONAL EPIDEMIC OF AIDS AS WELL AS FROM HEPATITIS B AND THE MANY OTHER DISEASES TRANSMITTED THROUGH THE HANDLING OF INFECTIOUS WASTES.

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STATEMENT OF THE AMERICAN HOSPITAL ASSOCIATION BEFORE THE SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES OF THE SMALL BUSINESS COMMITTEE OF THE U.S. HOUSE OF REPRESENTATIVES ON THE REGULATION OF INFECTIOUS WASTE

August 9, 1988

Mr. Chairman, I am Nelson Slavik, Ph.D., president of Environmental Health Management Systems, Inc. and chairperson of the American Society for Hospital Engineering's Environmental Safety Committee. I am pleased to testify today on behalf of the American Hospital Association, which represents more than 5,300 member institutions and 40,000 personal members. Hospitals are very concerned about the appropriate management of potentially infectious medical waste, and we appreciate the opportunity to discuss this issue with you today.

AHA shares congressional interest in protecting the health and safety of health care workers, waste disposal personnel, the public at large, and the environment. Recent events, such as the floating garbage barge and the washing ashore of medical and other waste on some Eastern shores, have highlighted the problems presented by solid waste disposal in the United States. Media attention has understandably focused on that waste which the public perceives as presenting the most risk--medical waste. But, infectious waste cannot be addressed outside of the context of the larger problem. The growing volume of solid waste, the diminishing number of disposal options, and the rising concern among the public clearly point to the need for a national strategy on these issues.

With respect to the risks posed by medical waste, three questions need to be examined:

- What types of medical waste should appropriately be considered infectious and how should these be defined?

- What is the extent and nature of infectious waste disposal problems?

- What steps are needed to address the real and perceived risks of medical waste disposal? I specifically mention real and perceived risks because both must be addressed if we are to be responsive to public concerns, although each may require somewhat different solutions.

Definition of Infectious Waste

AHA feels strongly that the lack of a consistent and rational definition of infectious waste for use by federal, state, and local agencies creates the most significant obstacle to efficient waste management and contributes to public apprehension about the effectiveness of current practices. Without a universally accepted definition of infectious waste and the categories of waste to be subsumed under that definition, a hospital or other health care facility could classify from 5 percent to 70 percent of its waste stream as infectious, depending upon the criteria used. Given that the cost of infectious waste disposal exceeds that of general municipal waste by up to 50-fold, the additional expense of treating wastes as infectious must be justified by evidence of the need for greater disease prevention and environmental protection. To date, however, there has been no epidemiological evidence that medical waste causes disease in the community.

The Environmental Protection Agency currently defines infectious waste as "waste capable of causing infectious disease" (emphasis added). The agency correctly identifies five factors that "contribute to the risk of introduction of disease." These are:

- Presence of a pathogen;
- Sufficient virulence;
- Dose of the pathogen;
- A portal of entry; and
- Resistance of the host.

Unfortunately, most individuals equate the presence of a pathogen with infectious waste. The presence of a pathogen alone is not sufficient to represent a risk of infection. This concept is difficult for the public to grasp but is essential if risk is to be assessed accurately. All environments, except those maintained under sterile conditions, harbor some population of pathogenic microorganisms. It is important to remember that all the factors I mentioned must be present simultaneously for disease transmission to occur.

In practical terms, individuals seeking a workable definition of infectious waste generally look to specific categories or types of waste. Although this approach is more simplistic, it can result in a tendency to de-emphasize or ignore the requisite interaction of all five factors in the chain of infection. Moreover, the adoption of differing categories by various federal and state agencies, particularly across states, has led to considerable confusion among waste generators, haulers, disposal sites and the public as to what waste is appropriately regarded as potentially infectious.

AHA recognizes that waste categories must be used in implementing a workable system. Therefore, we strongly recommend that the four general categories of infectious waste adopted by the Centers for Disease Control (CDC) be used by all federal and state agencies. Specifically, these include:

- Contaminated sharps;
- Cultures and stocks of infectious agents;
- Blood and blood products; and
- Pathological waste (in which we would include animal carcasses).

In endorsing the inclusion of four waste categories, we acknowledge that our rationale for doing so varies according to the degree of risk posed by each grouping. Two of the four categories--contaminated sharps and cultures and stocks of infectious agents--represent the greatest risk of injury or transmission of infection from mismanagement or improper disposal, and strict adherence to disposal guidelines should be ensured. Although there have been no reports of disease in the community associated with sharps, items such as needles and scalpels have been associated with injury and disease transmission in occupational settings, resulting in infection with viruses such as hepatitis-B and human immunodeficiency virus. This occupational risk is believed to be related to the recent contamination of sharps with sufficient quantities of pathogenic material (usually blood) and provision of a portal of entry into a host through punctures or cuts. Additionally, cultures and stocks of infectious agents pose a potential risk due to their heavy concentration of biological materials and the fact that they usually are in glass containers that, if broken, become contaminated sharps.

The two remaining categories, blood and blood products and pathological waste, are not associated, epidemiologically or microbiologically, with infectious disease transmission in the environment but are still perceived by the public to pose a substantial risk of harm. To remain responsive to community concerns and to acknowledge the "learning curve" that must be realized through public education, AHA believes it is necessary to continue including these categories in the definition of infectious waste. It should be stressed, however, that adherence to prudent management practices at the point of generation is sufficient to prevent disease transmission from these two categories.

Although blood and blood products can present an occupational hazard, particularly in the presence of sharps (a portal of entry), they do not in themselves present an environmental risk because of the fragility of viruses and other organisms once away from the body. The occupational risk can be adequately managed with appropriate workplace precautions, which have been addressed by CDC, AHA and the Occupational Safety and Health Administration (OSHA). Pathologic wastes generally present a hazard to the public only from an emotional or aesthetic point of view and, thus, their prudent handling and disposal is sufficient.

I have mentioned several times the different risks found in the occupational setting and in the environment. These differences are sometimes difficult to understand but are central to identifying appropriate waste management practices. The recent emphasis in health care settings on the use of "universal precautions" for contact with blood and body fluids of all patients should not be allowed to confuse the issue. Although the concept of universal precautions regards blood and body fluids from all patients as potentially infectious, these precautions are designed to prevent occupational exposure of mucous membranes and non-intact skin to blood-borne diseases. As such, barrier precautions are employed in the health care setting, where the risk of such exposure is intense and frequent. Once waste is properly contained, and in the absence of gross negligence by the waste handler, two essential factors for disease transmission are no longer present; mode of transmission and portal of entry. In addition, once blood and other fluids are away from the body, contact with air accelerates destruction of pathogens.

For these reasons, isolation wastes and any other waste potentially contaminated with blood and body fluids (for example, surgery or dialysis waste) should not be considered infectious. Studies quantifying the microbial load associated with hospital waste from different sources, such as surgical suites or intensive care units, have found that this waste is no more contaminated with microorganisms than household waste. Indeed, a study by Kalnowski (1983) found that hospital waste was anywhere from 10 to 10,000 times less microbially contaminated than household waste.

Nature of the Problem Posed by Infectious Waste

I have spent considerable time discussing the definition of infectious waste because a thorough understanding of the real risks are essential if we are to evaluate the nature of the problem and devise an appropriate strategy for addressing it. We know that there has been no epidemiological evidence of disease transmission in the community from improper handling or disposal of hospital waste, excluding the occupational risks associated with sharps. Indeed, a recent survey of a random sample of U.S. hospitals, conducted by AHA and Dr. Bill Rutala of the University of North Carolina, confirms what we know from the scientific literature: no cases of disease transmission related to waste disposal (excluding occupational needlesticks) have been reported. Despite the lack of evidence of risk, however, we believe that all generators of medical waste should continue to take appropriate steps to maintain a safe environment.

Hospitals have been extremely conscientious in following recommended guidelines for infectious waste management. Eighty-five percent of our 441 survey respondents are in voluntary compliance with the CDC guidelines for waste designation, handling, and disposal. In addition, the Joint Commission on Accreditation of Health Care Organizations requires hospitals to demonstrate an effective waste management program. Indeed, a majority of hospitals could be accused of "over-management" of infectious waste, as opposed to mismanagement.

Approximately 95 percent of hospitals surveyed identified autopsy, isolation and dialysis wastes as infectious, reflecting practices that go well beyond the CDC recommendations. This variance reflects, in part, the wide disparity among jurisdictions regarding definitions of infectious waste. The implications of this expanded waste load are significant considering that options for on-site waste disposal are shrinking, due in part to restrictions on incineration, and off-site disposal is becoming prohibitively expensive.

An Effective Waste Management Strategy

As discussed earlier, the most significant obstacle to effective waste management is the lack of uniform definitions and, thus, practices across the country. Until this conflict is resolved, it will be difficult to assure that appropriate education and monitoring are being implemented across all areas involved in waste management. To remedy this confusion, we recommend that the EPA develop a model state plan and/or model state regulations, incorporating the CDC guidelines. Consistent guidance can go a long way toward removing obstacles to prudent waste practices. In addition, EPA can play a critical role in educating all parties involved in waste management to ensure that guidelines are fully understood.

Beyond actions to clarify what management practices are appropriate for infectious waste, a serious look is needed at developing a national strategy for handling the growing problem of solid waste. New disposal alternatives need to be identified and current approaches refined so that viable disposal options are not discounted. A number of steps are needed, including:

- Greater funding of technology assessment so that appropriate criteria for the use of steam sterilization and incineration are available to state regulators. A lack of understanding about the use of these options has, in some cases, led to inappropriate restrictions on disposal practices. These restrictions only add to the dilemma facing hospitals regarding appropriate handling of infectious waste;

- Exploration of the use of regional incineration. Central localized sites could serve the needs of one or more counties while providing a cost-effective means of waste disposal. Centralized processing could increase control over waste handling and minimize transportation of wastes; and

- Avoidance of the use of public surface waters (for example, ocean dumping) as a disposal site for any waste. These are inappropriate and dangerous sites for disposal because of the lack of control over the end result of waste disposal.

Will the actions discussed here be adequate to prevent further breaches of proper waste disposal, such as those recently seen on the East Coast? Although these incidents have understandably generated considerable public concern, they fortunately appear to be the rare exception rather than the norm across the country. Although recent incidents are still not clearly understood, media accounts suggest that they may have resulted from unscrupulous practices by a few waste haulers. We believe that the development of a consistent approach to infectious waste and greater education of all those involved will go a long way toward solving the problem. But, it is important to recognize that some of the most widely reported incidents last summer were linked to small outpatient clinics, which are frequently exempt from state regulations. Consistent with our argument for refining the definition of infectious waste to four categories, we do not support waste designation on the basis of its source, as would be the case in allowing exemptions for "small quantity" generators. If a determination of whether infection is present is based on scientific, epidemiologic evidence, presence of a risk alone should be sufficient to require consistent management controls, regardless of the setting. Therefore, the two waste categories for which there is a documented risk of disease transmission (contaminated sharps and stocks and cultures of infectious agents) should be managed consistently across all settings, including outpatient clinics, ambulatory surgery centers, private physicians' and dentists' offices, nursing homes, hospices, and, potentially, home care settings. For those two categories that are driven by public perception of risk--blood and blood products and pathological waste--there should also be consistent application of guidelines for prudent practice.

The volume of waste from small-quantity generators is difficult to estimate, but the scope of the problem may be projected by even a cursory look at the number of facilities under consideration. Drawing from data collected in 1985, 13,200 freestanding laboratories, 180,000 private physicians' offices, and 98,400 private dentists' offices should observe proper infectious waste management guidelines. Approximately 2,900 outpatient clinics and 16,400 nursing homes generate medical waste, using 1986 figures. In 1987, there were approximately 650 ambulatory surgery centers and 860 freestanding dialysis centers. More than 225 blood banks not associated with a medical facility were reported in 1987. These figures do not capture all of the health care facilities and home care settings that generate medical waste, a number that is growing with the shift in emphasis to outpatient care. These facilities together represent a significant population of generators that should be observing appropriate management practices.

If small generators are to be held accountable for appropriate disposal standards, as we believe they should, it is even more imperative that cost-effective alternatives for disposal and monitoring are identified and implemented. We urge both Congress and the Administration to make this a top priority.

Finally, AHA does not support the implementation of a tracking system for off-site disposal of infectious waste because such a system would be very costly and burdensome, would be unlikely to prevent the infrequent occurrence of gross negligence by unscrupulous waste processors and would not lead to prevention of disease. In addition, implementation of a tracking system may cause significant new problems for generators, handlers, and regulators without a recognizable benefit. The sheer volume of medical waste that would have to be manifested each day would create a tremendous administrative and cost burden on hospital staff dedicated to providing high quality patient care. In addition, such requirements could conceivably divert institutions' resources from effective tracking and management of hazardous chemical wastes as required under the Resource Conservation and Recovery Act and OSHA's hazard communication standard.

Finally, we fear that the current focus on tracking is diverting our attention from the root problem that we must have the courage to face: we must find better, more cost-effective ways of waste disposal for the long term. We strongly believe that the finite resources available for managing this problem are better spent on implementing appropriate systems at the beginning of the process, not the end.

AHA takes the management of infectious waste seriously and values the opportunity to present its views to the Committee. These issues have generated considerable public concern and must be adequately addressed. We urge that any strategy adopted, however, be grounded in scientific evidence of need and not as a result of "perceptions" of risk.

We look forward to continuing our work with Congress and federal agencies in refining waste definitions and improving understanding of appropriate waste management practices. AHA and our affiliate, the American Society for Hospital Engineering, have been very active in working with both regulators and our members on these issues for several years and are eager to resolve the remaining problems discussed today. Mr. Chairman, I would be happy to answer any questions you may have.

Recent American Hospital Association Activities Regarding Infectious Waste

1986 - Assistance to Environmental Protection Agency on development of revised *EPA Guide to Infectious Waste Management*.

June 1987 - Live nationwide satellite teleconference on management of hazardous materials, including infectious waste.

August 1987 - Satellite bulletin to all hospitals regarding universal precautions, including management of waste in the occupational setting.

In progress - Development of needlestick injury prevention campaign through OSHA grant.

In progress - Development of resource guide on hospital occupational health and safety, *Employees at Risk: Protecting the Health of Health Care Workers*.

Recent Activities of the American Society for Hospital Engineering on Infectious Waste

1985 - Assistance to EPA in revision of *EPA Guide to Infectious Waste Management*.

Annual ASHE Conference - Includes at least one session on hazardous and infectious waste.

Annual Incineration Program (since 1982) - Covers operation, selection, and design of pathological and hazardous waste incinerators. Pertinent local, state, and federal regulations are covered.

July, August 1988 (yearly since 1979) repeated across country - Environmental Management Workshop: An Integrated Approach to Hazardous Waste Management (includes infectious waste management).

Ongoing - Numerous publications on waste management issues, including:
Hospital Waste Management (1985);
Hazardous Waste Management Strategies for Health Care Facilities (1987);
Controlled Air Incineration: Design, Procurement, and Operational Considerations (1986).

NEIL GOLDSCHMIDT
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August 8, 1988

PRESENTATION OF LEGISLATIVE TESTIMONY

TO: Subcommittee on Rgulation and Business Opportunities

FROM: Lester N. Wright, M.D., State Health Officer
Oregon Health Division

Infectious or Biomedical Wastes

The summer of 1988 may be remembered, in part, as the year when wastes that appeared to be biomedical washed ashore on some of our most visible beaches and captured our interest to the problem of biomedical and infectious wastes. Captured our attention enough that the major news magazines highlighted the problem. Captured our interests enough that this hearing is being held.

But the summer of 1988 is not the first time that we should have been alerted to the potential problem of biomedical and infectious wastes. In Oregon, our attention was focused on this problem a couple of years ago. Garbage haulers threatened to refuse to deal with these wastes. They were concerned for their safety, what with AIDS on everybody's minds. When business suited gentlemen got too close to the working edge at a garbage transfer station at the time when a dozer was driving over a load of wastes that included blood and their clothes were splashed, it was obvious there was a problem that had to be dealt with. (They were, it developed, at no risk, since the blood had been autoclave sterilized before being dumped, but their, and our, attention was focused!)

In Oregon we used an approach we frequently use. Under the general powers of the Health Division we convened a task force to develop solutions. That group included not only epidemiologists from the Health Division, but also representatives of the Oregon Association of Hospitals, the Association of Practitioners in Infection Control, the Oregon Department of Environmental Quality (which has statutory responsibility for solid wastes), the Oregon Sanitary Service Institute (a professional organization of garbage haulers), and the Teamsters Union.

The Task Force considered the magnitude of the risk, explored the existing laws and rules, and proposed a plan for dealing with the problem. That plan is substantially in effect now and the document produced is being printed. Let me first give a little background on the problem and its relative risks, then tell you the solutions we have selected for Oregon, and conclude with a few recommendations on possible Federal action.

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To be very basic, in order to transmit a disease, the disease causing organism has to be present in sufficient quantity and it has to find its way into a person who is not immune to it, and it has to get into that person through routes that vary according to the organism. For example, some organisms such as Mycobacterium Tuberculosis infect by being inhaled. Others such as Hepatitis A enter through the mouth with food or drink. Others such as Hepatitis B and HIV that causes AIDS enter the blood stream or cross mucous membranes and broken skin. In addition, if the organism can multiply outside of the body, as do staphylococcus and salmonella, there will be more of them available to the person coming in contact with the trash.

Fortunately the risk to those coming in contact with trash is apparently relatively small. Very few disease outbreaks have been traced to contact with solid waste.

According to the National Institute for Occupational Safety and Health (NIOSH), people who work with solid waste have occupationally related injuries seven times more often than does the average worker in this country. Most of the risk is of injury rather than illness, but all waste, including that from private homes, potentially contains disease causing organisms. In fact, in limited studies which have measured microorganisms associated with solid waste from various sources, it has been found that household waste is 10 to 10,000 times more contaminated than that from hospitals. A number of the pathogens were found more commonly from household waste. That includes organisms associated with fecal-oral, with respiratory, and with blood borne infections. Where in household wastes? In disposable diapers, in contaminated facial tissues, in blood contaminated tampons, sanitary napkins, bandages, and home used syringes and needles.

Most people who develop infections are never hospitalized, and if they are, it is often at a time when they are well past their greatest infectiousness. In Oregon, 89% of Hepatitis cases are cared for at home. 99% of persons potentially infectious with HIV are living at their homes in the community. And almost any garbage can or dumpster in the city can include used syringes and needles.

Certain waste products are considered to be a greater risk of carrying disease causing organisms and thus requiring more stringent disposal practices. These include biological agents and cultures, liquid human blood and blood products, liquid body wastes, human tissues and organs, and contaminated sharp instruments. Health care institutions are required to treat these items in specified ways to lessen the risk from them. These requirements follow the recommendations of the Centers for Disease Control. Thus items can be sterilized before discarding, and can be separated into safe containers before disposal to minimize the risk.

But treating solid waste from health care institutions, while important, does not reduce the risk of exposure to the same organism in the general waste.

Several years ago NIOSH published a handbook, Hazard Recognition and Prevention in Residential Waste Collection. It recommends specific standards for those who handle solid waste, including hard hats (remember injury is their greatest risk), protective eye gear, skin protection by coveralls, good hand protection by gloves, boots that won't be easily punctured, and masks to protect in dusty places. In addition, because of the potential hazards, good hygiene is of great importance to their health. If you think those recommendations make sense, are obvious, surely are being followed, then you obviously have not seen sandal clad people in shorts handling garbage--as they still do.
In Oregon, following these guidelines is part of our plan.

Is solid waste a problem that extends beyond state boundaries? Of course. Whether it is barged from one place to another, or shipped by land, it often crosses state lines. And the approach to safety varies by state and local jurisdiction. That may not be bad--as long as at least minimal standards are met by each--but that is not the case at present. It was recently reported that 11 states have no statutory controls over biomedical wastes. Some that do have them have little or no enforcement available.

The problem of surreptitious dumping by illegal dumpers is a far wider problem than that of biomedical and infectious waste. As options for disposal of solid waste decrease, the temptation to illegally dump will continue to increase. That has the risk of bringing each of us into contact with potentially hazardous waste. Ways must be found to stop this surreptitious dumping whether within states or across state lines or national borders.
This must be stopped not only to protect the environment in general, but to keep the public from contact with solid waste.

Health care institutions are not the greatest risk at present. Licensed facilities are required to separate hazardous waste and contain and sterilize it now, prior to disposing of it. That is one of the areas inspectors note. But a greater risk is the small generator of infectious waste--small office, lab, and home. Some of these could and should be included under the same regulations as are larger health care facilities. Obviously some, such as households, can not. EPA can regulate biomedical waste under the Resource Conservation and Recovery Act, or it can require states to adopt at least minimum standards.

We will never be able to fully alleviate the problem at the source. The dumpster on the school grounds will still have blood contaminated used needles and syringes in it. (Better there than on the playground!) What we must do is to universalize good safety and hygiene practices in dealing with ALL solid waste. Just as "Universal Precautions" are required of all health care workers if we are to protect against blood borne diseases such as Hepatitis B and HIV infection, so we must require and routinize "Standard Safety Practices" for those who work with solid waste. Those could be rapidly adapted from the NIOSH recommendations and required by OSHA.

The combination of greater, more uniform source control, measures aimed at stopping surreptitious dumping, and "Standard Safety Practices" for solid waste workers could significantly help protect from potentially infectious and biomedical waste.

MASSACHUSETTS INFECTIOUS WASTE MANAGEMENT
THE PROBLEM OF DISPOSAL

Prepared by Allen Dusault Jr.
Of Massachusetts DEQE
For the Office of Technology
Assessment (OTA)
August 1988

MASSACHUSETTS INFECTIOUS WASTE MANAGEMENT
THE PROBLEM OF DISPOSAL

Background

Massachusetts is facing difficult questions concerning biomedical waste management, specifically as it relates to infectious and potentially infectious waste disposal. Most recently we have experienced the problem of syringes and other biomedical waste washing up on our shores resulting in the temporary closing of some of our beaches. This event, however, is symptomatic of much larger issues and concerns.

We have a confused public frightened by the AIDs epidemic demanding infectious waste safeguards; we have less than fully informed elected officials eager to pass new legislation proscribing waste management practices; we have concerned hospital administrators facing rising hospital waste disposal costs and a growing shortage of trained staff; we have a waste management industry enthusiastic about new business opportunities but confused by existing regulations and anxious about liability issues; and we have well intentioned regulators administering less than adequate and sometimes conflicting regulations.

As a state Massachusetts generates approximately 6 million tons annually of solid waste. Of this, approximately 50,000 tons, or just under one percent comes from licensed hospitals and healthcare facilities. It is believed that in excess of 10,000 tons per year of infectious waste is generated by licensed facilities in Massachusetts. Most of this biomedical waste comes from the Boston metropolitan area where the concentration of hospitals and healthcare facilities is highest.

Where does all this potentially infectious waste go for disposal? Most infectious waste generated by regulated healthcare facilities is incinerated. There are approximately 120 incinerators in Massachusetts that accept biomedical waste of which only two are commercial infectious waste incinerators. There are also up to a dozen landfills that take sterilized infectious waste. In addition, Massachusetts sends some of its infectious waste out-of-state. Currently it is being transported as far north as Quebec, Canada and as far south as South Carolina.

Regulations

The regulation of biomedical waste in Massachusetts is under the authority of primarily two different agencies. The Department of Public Health (DPH) is responsible for regulating infectious waste management at hospital and healthcare facilities under its jurisdiction. Most doctors offices, dental clinics and research laboratories are not subject to DPH Infectious Waste Regulations.

The Department of Environmental Quality Engineering (DEQE), which I represent, regulates the waste disposal facilities and offsite transfer and processing facilities. Two different Divisions within DEQE are directly responsible for regulating the subject facilities. Our Division of Air Quality permits the incinerators and the Division of Solid Waste has authority over sanitary landfills, transfer stations and waste treatment facilities.

In practice, however, the authorities of the respective divisions may overlap. There are other instances where responsibility for regulatory oversite is unclear or spread out among several agencies. This is exemplified on the issue of whether or not unsterilized infectious waste is a hazardous waste. Under federal RCRA law, and state hazardous waste regulations, infectiousness is a characteristic of hazardous waste and could be required to comply with hazardous waste regulations. Our agency has been evaluating the possibility of a hazardous designation, especially as it applies the siting of commercial facilities (offsite to a hospital or health-care facility) that are to accept unsterilized infectious waste. This Spring, DEQE made a determination that commercial infectious waste incinerators are solid waste facilities, at least for now, and not subject to hazardous waste facility siting or operating requirements. However, this could change if another independent state agency - the Massachusetts Hazardous Waste Site Safety Council - makes its own determination that a commercial infectious waste handling or disposal facility is a "Hazardous Waste Facility" subject to all state requirements for siting such facilities.

New Facilities

Note that since our hazardous waste law went into effect in 1981 no hazardous waste disposal facilities have been sited or built in Massachusetts. This failure to site any such facilities, either incinerators or landfills, is not through lack of effort or an absence of need. Rather it reflects, to some extent, problems in the law. More importantly however are powerful opposition groups subscribing to the ubiquitous NIMBY (not-in-my-back-yard)syndrome. In Massachusetts their influence has attained such stature that few attempts are made anymore to site hazardous waste facilities. Even if the Site Safety Council decides not to classify a commercial infectious waste facility as a "Hazardous Waste Facility" there is no certainty that another key player, local Boards of Health, instrumental in the siting process, will agree.

On the legislature side of the equation, a bill was introduced this year to eventually require all infectious waste to be incinerated. If this or a similar bill were to pass, and if an agency of the state government or the federal government prevails in listing infectious waste as a "Hazardous Waste", it is unlikely that any new commercial infectious waste incinerator will be built in Massachusetts. This is due to the institutional and political barriers to siting hazardous waste facilities which have proved insurmountable.

Recognize also that so long as new incinerators are not built, existing mostly older hospital waste incinerators will maintain their status as the primary disposal option for infectious waste. Unfortunately, most of these existing operations have outdated or inadequate air pollution control equipment and operate inefficiently. Data from states, other than Massachusetts, on similar types of hospital incinerators have found inordinately high levels of dioxin and furans in both the stack emissions and in the ash.[1] Although the health risks from these facilities need further study, it is evident that there are substantial health risks associated with the prevalent older type hospital incinerators.

Autoclaving and other methods of sterilization may appear to be more attractive alernative than incinerators. However, autoclaving has almost never been as unpopular in Massachusetts as it is today. Three years ago, it is estimated, more than half of the regulated infectious waste was autoclaved prior to disposal (unsterilized infectious waste cannot be landfilled in Massachusetts). Today it is estimated that only about 10% of the infectious waste from DPH regulated facilities is autoclaved.[2]

Disposal 'Crisis'

The reason for the dramatic decline in the utilization of autoclaving appears unrelated to merits of the process. Instead the primary factor responsible dates back to a series of "crises" faced in the Boston metropolitan area, beginning about two and on half years ago. At that time, coinciding with growing public awareness of the AIDs issue, our commercial waste incinerators began to refuse hospital waste based on several instances where sharps, blood products and other waste associated with hospitals, were discovered. Some haulers of the waste joined in refusing to accept "red bag" waste. This was eventually expanded to include all hospital waste. Landfill operators also became sensitive to the issues and began refusing hospitals waste. The question of whether or not the subject material was sterilized became irrelevant as other more demonstrative concerns were manifest.

To resolve the 'crisis' meetings were held between affected parties and state regulators, letters were sent and ultimately some decisions were made. One of those decisions, made by DEQE,

1. C.C. Lee, G. Huffman, and T. Shearer, "A Review of Biomedical Waste Disposal", U.S. EPA, Feb. 19, 1988.

2. Massachusetts Hospital Association, Pers. Comm with George Westcott.

was that sterilized "red bag" waste is a special waste requiring local Board of Health approval for sanitary landfill disposal (note that local BOH officials are elected in Massachusetts). This decision, in combination with the refusal by some commercial disposal operators to accept "red bag" waste under any circumstance, had a chilling effect. The result was decline in autoclaving as a method of treatment and a commensurate increase in incineration, much of it out-of-state facilities.

Conclusion

Although it appears that hospitals are doing a better job at segregating their infectious and non-infectious waste streams, and that there is greater training of health care workers about proper disposal methods, it is unclear that we are at less risk today. More infectious waste is being transported over our roads, and potential sources of exposure to infectious agents, from doctors offices and dental clinics, continue to go unregulated. Additionally, our "sanitary" sewer systems are discharging increasing quantities of "raw" sewage, containing a phethora of infectious agents, into our waterways and harbors (estimated in the tens of billion gallons per year in Boston Harbor alone). And regulatory agencies, short staffed to begin with and burdened with increasing work loads, have seen little or no increase in funding of biomedical waste regulatory programs

Instrumental to effective public health policy is a determination of what sources and types of infectious waste pose the greatest overall health risks as well as the settings for likely exposure. Equally important is the availibility of safe, environmentally sound disposal options. Such facilities should be close to the sources of generation, preferably in the same state, and provide cost competitive services.

To the extent new infectious waste disposal facilities cannot be sited or built, the problems now extant will likely be exacerbated.

Ultimately a federal role is needed to provide a coordinated approach to resolving some of the infectious waste issues facing Massachusetts and other states. However it is important that any legislative or regulatory initiative be pragmatic, flexible and responsive to real, and not perceived public health threats.

ADJ/mc

BROWNING-FERRIS INDUSTRIES

Testimony of

Robert B. Shaw

Divisional Vice President, BFI Medical Waste Systems

BROWNING-FERRIS INDUSTRIES

Before the

House Committee on Small Business

Subcommittee on Regulation and Business Opportunities

in

Washington, D.C.

on

August 9, 1988

Testimony of Robert B. Shaw, Browning-Ferris Industries

Introduction

It is a privilege to present testimony today on one of the dominant issues of our day. When a subject warrants cover story coverage by both major newsweeklies, has major potential health effects yet is not being aggressively addressed either by the federal government or many state governments, and is on the minds of communities throughout the largest metropolitan area in this country, it is high time for Congress to sit up and take notice. We are grateful that Congressman Wyden has seen fit to turn the spotlight on this increasingly significant issue.

Browning-Ferris Industries is one of the nation's leading companies in the collection, transfer, processing and disposal of solid and hazardous waste. Through its Medical Waste Systems Division, BFI is the largest company in the field of biomedical waste collection, treatment, and disposal.

BFI's medical waste operations span the country, from Boston to Fort Lauderdale, from New Orleans to Phoenix, from Los Angeles to Portland and many points in between, including Memphis, Cleveland, Atlanta, and Baltimore. Just three years ago, we operated in only two states. Today, we collect or treat infectious waste in 42 states. BFI strongly encourages tough and effective regulation of the collection, treatment, and disposal of infectious waste, at the Federal, state, and local levels.

Without tough regulations, there is simply too much opportunity for mischief in this area, both from generators seeking to escape the increased costs of proper medical waste disposal and from companies without reputations to protect looking to make a quick buck based on the current public concern about this issue.

Nature of the Problem

The issue of defining what is infectious waste has its own complications. One school of thought holds that infectious waste consists of all waste generated by providers of medical care. This would include not only obvious agents for transmission of disease but used hospital gowns, gloves, even some hospitals' used phone books. We believe the better view is that the definition of an infectious waste should include (1) pathological waste, (2) sharps, (3) blood, blood products, and body fluids (including all containerized fluids, dressings displaying visible soilage with blood, and sponges), and (4) microbiological laboratory cultures and disposable products contaminated by them. By so defining infectious waste, we identify the genuine culprits of potential disease transmission without being so all-inclusive that waste generators are deterred from proper management practices by the sheer of volume of special waste.

Infectious waste has surfaced as an issue recently for two main reasons. First, potentially injurious objects are more likely to be discarded than in the past. One can easily recall the not-to-distant past when medical items such as syringes and needles, which today are disposed of after a single use, were sterilized and reused. The used needles and syringes now washing up on the beaches of New York and New Jersey, to the extent they originated in medical offices or hospitals, would simply not have been discarded many years ago.

There are at least two important consequences of increased use of disposables. Many of these disposable items are now being burned in hospital incinerators originally designed for pathological waste (body tissue) only. The high plastic content of these items may cause problems with the incinerator equipment as well as potential air quality problems for the surrounding environment. In addition, disposables that are not differentiated from the conventional solid waste disposal stream are contained in everyday municipal waste and may also end up at landfills, where they pose a threat to waste haulers and landfill workers.

The second main reason for the emergence of the infectious waste issue stems from the undeniable public concern over unrelenting, communicable diseases. The public's unease associated with communicable diseases, whether scientifically justifiable in every case or not, must be addressed as regards the potential risk from waste. The specter of contracting various diseases by coming in contact with infectious waste materials such as needles and syringes has captured the media's attention enough to prompt state and local governments to act.

The generators of infectious waste that come most readily to mind are hospitals, nursing homes, and laboratories. Some states, in fact, have restricted the reach of their infectious waste legislation to cover only such facilities. There is no dispute, however, that the universe of generators is far more extensive, to include medical buildings, urgent care clinics, physicians and veterinarians offices, and indeed even private homes. Infectious waste legislation is only as effective as its comprehensiveness.

While the public's greatest fear clearly focuses on the risk of contracting AIDS, hepatitis B is in fact a far more serious documented risk at present. An average of 200 health care workers alone die annually from contracting hepatitis B in the work place. Therefore, even if the AIDS epidemic were miraculously to abate, the need for effective infectious waste regulations would remain pressing.

Who Is At Risk

As a national company with employees functioning at every step in the waste collection, handling, and disposal chain, BFI has the utmost concern for the welfare of its workers. And for good reason. Solid waste collection personnel -- for municipal waste collection services as surely as for private companies -- risk injury any time a plastic bag of municipal waste they throw into a waste collection vehicle contains a used needle. Granted, the risk during any one day to a worker is not significant, but when one multiplies the number of potential exposures, and must now factor in the horror -- however remote -- of possibly contracting AIDS, the risk is surely not insubstantial.

Waste haulers get splashed with blood when compacting waste from hospitals, waste that should have been segregated out. Landfill operators, similarly, who must monitor and often traverse the working face of a landfill, are themselves exposed to the possibility of needle punctures or other contamination risks at the landfill. Even maintenance personnel who merely work on maintaining our trucks must concern themselves with the possibility that contaminated needles become lodged in the intricate hydraulic equipment which must be handled directly if it is to be maintained properly.

A welder at one of BFI's maintenance shops for trucks that are supposed to receive only standard municipal solid waste recently was working inside the truck, and when he leaned back to support his weight, a glass blood tube broke, shoving blood-covered glass into his hand. A subsequent examination of the truck found other intact blood tubes, one of which was marked "HIV." This incident, only one of many in which BFI solid waste personnel have exposures to untreated medical waste, points up both the improper practices of our customers (who are directed by BFI not to put medical waste in regular trash containers) and the potentially tragic situations solid waste handlers and vehicle maintenance personnel face.

When a dentist puts his used needles in a plastic bag, and one of the needles later lodges in the waste hauler's shoulder while he is emptying the dentist's trash container, it is clear that more than our shores are at risk. Likewise, within the past two years, a human arm and leg were spotted in a BFI landfill in Oklahoma. When BFI's manager met with the state and city health department officials to get them to prohibit untreated medical waste from solid waste landfills, the health officials rejected the suggestion. When BFI decided unilaterally to prohibit medical waste from our landfills, our competitors eagerly went after the very business we rejected.

BFI was a forerunner in the infectious waste area for many reasons. As discussed immediately above, BFI solid waste employees are at risk when infectious waste is discarded cavalierly. In early 1986, when BFI first entered the infectious waste market, it was becoming apparent -- even before widespread publicity of possible risk to the public -- that local governments were no longer going to tolerate business as usual by generators. BFI worked to develop the know-how for treating infectious waste properly. Then it was just a question of letting generators know the expertise was available to them, and at a price that would not break the bank.

Of course, employees in the waste services industry are only a small subset of the universe of people potentially at risk from the mismanagement of infectious waste. Of late, the mismanagement of infectious waste has manifested itself in a profound fashion on the beaches of New York and New Jersey. Reports suggest that the medical waste washing up on those beaches comes from a combination of sources -- junkies, sewage overflow, and, not incidentally, the improper handling of infectious waste, principally by generators seeking to avoid the added cost of proper infectious waste disposal. While the great weight of evidence suggests that the public faces little if any risk of contracting diseases by virtue of encountering used needles or, indeed, even vials of contaminated blood on the beaches or in the oceans, who among us wants to take even that small risk, especially given the certainty that AIDS, if contracted, is fatal as of today.

The mismanagement of infectious waste is by no means limited to our nation's shoreline, however. Just last summer, two celebrated instances of public exposure to discarded medical waste first highlighted the possibility of danger. In Youngstown, Ohio, and in Indianapolis, Indiana, children were found playing in trash dumpsters behind medical buildings. In one case, children poked themselves with used needles in a game of "doctor." In the other, broken vials of contaminated blood splattered over children playing amidst such waste. Fortunately, tests to date have shown that none of the children involved in these incidents have become infected.

These episodes point up the need for regulatory efforts aimed throughout the country, not simply at the coastlines. Ironically, it appears that the health clinic in Indianapolis that disposed of the vials of contaminated blood violated no law by so disposing of such waste in a garden-variety trash container. This certainly argues for the need for comprehensive laws, whether federal or state.

Appropriate Precautions for Proper Management of Infectious Waste

In our view, the focus of any regulatory effort, whether through the EPA or OSHA, must be the requirement that infectious wastes be separated from other solid wastes at the point of generation and remain segregated until treatment. Moreover, they must be containerized properly to minimize the risk of exposure to health care workers and infectious waste workers alike, as well as the public.

The first line of defense against occupational exposure to infectious waste is to ensure that any regulations reach as many generators of infectious waste as possible. In addition to seeing that the regulations are sweeping, regulators should do their utmost to see that these generators take every precaution to segregate their truly infectious waste and to place this waste in proper containers prior to being picked up by a transporter. On-site treatment should be subject to the same standards as off-site treatment.

Typically, when BFI contracts with an infectious waste customer, we will first furnish such facilities with specialized containers to guard against the risk posed by needles, scalpels, infected tissue, dressings, and other articles used in a medical setting that by their nature, presence, or contact result in potential contamination with infectious agents. These might include puncture-proof containers for "sharps" and specially identified boxes for the waste. These specialized containers should invariably be required for use within the facility that generates infectious waste, ideally as close to the point of generation as possible. For example, the puncture-proof container for "sharps" should be in the doctor's office or other location at which needles are thrown away, rather than at some point removed from the point of being discarded. The further the specialized container is removed from the point of discard, the greater the likelihood for accidental exposure.

BFI makes periodic stops at facilities it services to remove these specialized containers containing infectious waste. We transport these containers in specially designed trucks that reduce the risk of contamination. The waste is taken to an appropriate treatment facility. There are presently two primary methods for treating infectious waste. One is incineration and the other is autoclaving, which is a steam sterilization process that also applies pressure at high temperatures, all of which serves to render pathogens nonviable. Incineration and autoclaving are both sound, acceptable treatment options for different types of infectious waste. In our view, it is typically unwise for a law to require one method over the other.

The cost to the generator of infectious waste that would utilize such containment and collection measures as are furnished by BFI and other reputable companies is immaterial in the overall scheme of hospital costs. This is especially so when one factors in the savings in occupational injuries avoided by taking appropriate precautions.

Proper containerization at the point of generation will do the most to safeguard workers. In tandem with our efforts to encourage generators to use proper containerization methods, however, BFI believes that personal protective clothing and equipment is appropriate for employees of infectious waste hauling and treatment companies. Those individuals, who, like health care workers, routinely come in contact with substantial quantities of infectious waste, should be required to follow "universal precautions" (to use the Centers for Disease Control designation). These precautions consist of the use of gloves in all cases and gowns and protective eye wear when the likelihood of direct exposure to blood or other bodily fluids is anticipated. Additionally, hands should be washed immediately and thoroughly both after exposure and when gloves are removed.

One area that poses a specific concern is the countless number of needles and syringes that are disposed of, not only by health care facilities, but by home health agencies and individuals in their homes. We are not suggesting that these all be regulated. We have explored options, however, regarding how to curb the problem of needle disposal throughout the solid waste stream. It seems plausible that there could be developed some method to track the dispensing and disposal of needles by the distributor or manufacturer. Pharmacies, for example, could provide sharps containers when dispensing needles that are then returned full with the next prescription. Perhaps there could be a deposit system to assure return of used needles. It would be much easier to manage the disposal at a central collection point then to manage it once the item is disposed of.

The volume of infectious waste generated in the United States each year is uncertain. Some published reports suggest that the volume could be as high as 700,000 tons per year. Of that amount, only a tiny percentage is subject to the thorough management practices that BFI and other capable medical waste companies routinely follow.

State and Local Developments Regarding Regulation of Infectious Waste

State and local regulation of infectious waste is not all of a recent vintage. California has regulations going back to 1962 requiring that needles and syringes be rendered unusable prior to disposable. Oregon, in contrast, still has no statewide law in place to protect the public from improper disposal practices.

State and local governments have moved quite erratically in the infectious waste area. At present, roughly 40 states have or are in the process of developing infectious waste legislation or regulations. Just within the past two years, New York, Louisiana, Missouri, Ohio, Indiana, and Texas, among others, have enacted state infectious waste legislation. BFI has pressed vigorously for tough regulations by states throughout the country.

State efforts have varied widely. In Louisiana, for example, the state legislature passed a two-page bill that simply directed the state environmental regulatory agency to develop comprehensive state regulations. Ohio and Indiana, in contrast, each passed legislation in excess of 30 pages that addresses in detail all relevant considerations. This is not to say that detailed bills are necessarily always better. In New York in 1987, for example, BFI and others in the infectious waste services industry pressed for comprehensive state legislation. Some interest groups, at times including doctors and hospital organizations, opposed these efforts. The result was a bill that, while lengthy, was substantially weaker than we proposed because too little infectious waste was covered by the restrictive definition and too few generators were regulated. Now, of course, New York finds itself with a major problem on its hands, and is going back to the drawing board. No one is saying "I told you so," but some of the very provisions we pressed for during the 1987 legislative session in New York are those that the state is now trying to enact or put in place through regulations.

In our view, the weaknesses in most state regulations involve less than comprehensive coverage, poor definitions so as to include less waste than necessary, exemptions for on-site facilities, and poor enforcement mechanisms. Hospitals tend by and large to follow reasonable precautions more frequently than do other generators of infectious waste. The tendency, however, to exempt hospital incinerators from rigorous state air quality regulations -- indeed, often from the entire permitting process -- is, in our view, a mistake. Hospital incinerators tend to be located in the middle of urban areas. Many tend to be old, and new ones often are not built with modern pollution control devices. Because hospital incinerators are often built with pathological waste in mind, when they burn plastics and other kinds of non-pathological infectious waste, they tend to do so rather poorly. It is imperative that infectious waste regulations, certainly with respect to incineration, must apply equally to on-site as well as off-site facilities.

The unevenness of state infectious waste laws has the obvious potential for creating havens for improper practices. Unscrupulous infectious waste haulers will tend to dispose of their waste where they can do so most cheaply. Only the promulgation of minimum federal standards will guarantee that the low water mark will not be so low as to both jeopardize public health and also create incentives for waste generators and haulers to escape decent practices.

Need for Federal Standards

We are strongly of the view that the time for federal standards for regulating infectious wastes has already arrived. To those who ask, "Where are the bodies?", we answer, "They are already there" in the persons of the scores of hepatitis B victims. Moreover, can there be any doubt that, given the increasing incidence of AIDS, before long infectious waste in some form or another will surely be a vehicle for communicating the AIDS virus?

In our view, federal infectious waste legislation should operate from certain fundamental principles. We most strongly believe that infectious waste, for example, should not be regulated under Subtitle C of the Resource Conservation and Recovery Act, the federal hazardous waste provision. Infectious waste poses a hazard, no doubt. But it is a hazard completely different from the human health and environmental hazards posed by the wastes with the characteristics commonly associated with hazardousness -- ignitability, corrosivity, reactivity, or toxicity. Indeed, infectious waste is at least as much of an occupational risk as it is an environmental risk. If a federal role is ultimately deemed necessary in this area, OSHA should have as much of a role as EPA in formulating regulations.

BFI believes that some sort of tracking document, from the point of generation up to the point of treatment and disposal of infectious waste, is necessary. Such a tracking document is akin to the "manifesting" that is used in connection with hazardous waste, but it would not include the tremendous administrative burden of paper processing associated with manifesting. Nor, because infectious waste is a more homogeneous waste than hazardous waste, is manifesting necessary from a health or environmental standpoint.

BFI actually uses a "bar code" method for tracking infectious waste. At the generator's facility, BFI applies a bar code which identifies the generator and volume. That bar code stays with the waste until the point of disposal. Such a tracking system, if required of all generators, would surely make it difficult to illegally dump hundreds of vials of contaminated blood products, as reportedly was done by laboratories in the New York-New Jersey area recently.

The management system required by any set of regulations must be sweeping. All sizeable generators must be covered. This applies particularly to, say, medical buildings, where no one doctor's office might generate substantial quantities of infectious waste, but in the aggregate, the volume of infectious waste produced could rival that generated by a hospital. The risk to the public from that coming from the hospital or the entire medical building is indistinguishable. Indeed, even a small quantity exemption must be used very carefully, if used at all. As the incidents last summer in Youngstown and Indianapolis testify, it does not take much infectious waste (in contrast to solid waste and even most hazardous waste) to pose a health risk.

Congressman Luken's bill, H.R. 3515, represents an excellent start in the area of requiring infectious waste regulations by the U.S. Environmental Protection Agency. We are hopeful that such legislation, if time does not permit enactment this year, will certainly receive substantial attention next year.

The EPA should certainly be in a position to provide technical assistance, education, and information to the states in helping the states to develop their own infectious waste programs. Ideally, states should have to face some fixed time deadline for putting minimum infectious waste programs into place. The hammer might be that the guidance already written by the EPA in the infectious waste area would apply automatically after the expiration of the time deadline and could be federally enforceable. The suggestion of yet another federally enforceable environmental program is not made lightly, but it may be the best alternative available.

- Finally, Congress cannot overlook one fundamental issue that has overarching implications for the disposal of any type of waste -- that is, the Not in My Backyard syndrome. Treatment and disposal facilities for all types of waste are often unwelcome by communities. Infectious waste facilities are typically no exception. BFI and other companies in the field are frequently rebuffed in efforts to site and permit infectious waste treatment facilities. The greater the number of such facilities, the less the likelihood would be for long-distance travel of infectious waste from the point of generation to the point of treatment and disposal. This in turn would reduce the cost, which in turn would reduce the incentives for improper disposal practices.

We recognize that both carrots and sticks are needed to help overcome the NIMBY problem. The carrots might include some financial incentives for communities to site waste disposal facilities. The sticks might be some penalties, such as withholding of available related funds or resources, from states that refuse to site disposal capacity.

Congress must understand that simply to enact infectious waste legislation does not genuinely address the problem if states and communities are unwilling to permit the construction of infectious waste treatment and disposal facilities. Perhaps if the public is sufficiently offended, however, by wave after wave of medical waste washing up on their beaches, the prospect of permitting the construction of a safe and modern treatment facility in their community may not seem quite so bad.

Conclusion

Poor federal legislation -- legislation that permits the administrative agency to write inadequate regulations -- is worse than no legislation. Poor legislation would allow states to pass wishy-washy laws and regulations if there is not a federal minimum standard with teeth. It might even prompt some states to roll the clock back after having made progress in this area. Solid federal legislation (we will submit a model bill that could be a starting point for federal action), on the other hand, can substantially help put the public's fears to rest.

We are pleased to participate in the subcommittee's deliberations on this important issue. We look forward to any opportunity to share our expertise with Congress to make its work in this area as productive as possible.

Infectious Waste Model Legislation/Regulation

Purpose

To encourage the proper collection, handling, treating and disposal of infectious waste materials.

Need

Hospital and medical waste materials over the past several years have been collected, transferred and disposed by two processes: incineration and land disposal.

Original medical incineration facilities constructed for treatment of infectious wastes were generally designed for destruction of pathological wastes and installed during the 1950's and 60's. With the addition of various disposable medical aids (tubing, syringes, culture dishes, etc.) complete thermal destruction of medical wastes is not being accomplished today in the majority of the older incinerators. Likewise, untreated infectious waste destined for land disposal have and continue to be a threat to collection workers; both through potential physical injury as well as exposure to infectious agents.

This regulation prescribes methods to control risks to health and environment through required methods presently being practices in several states and communities throughout the nation.

Summary of Provisions

- Infectious waste is defined to include surgical, biological, isolation, laboratory, and various other waste materials which by their nature, presence, or contact result in potential contamination with infectious agents.
- Specific storage and containerization is required to provide separation, attenuation, and a safe working environment for handlers of infectious waste material.
- Infectious waste material will be treated via incineration or steam sterilization prior to disposal. Liquid waste materials may be discharged to a sewerage system as approved or permitted by the state regulatory department.
- A system of shipping papers which provides for a method of tracking the waste from cradle to grave.
- Operators of infectious waste treatment storage and disposal facilities are required to meet certain operational and procedural criteria.
- Transporters of infectious waste must register all vehicles and meet specific loading and unloading requirements as well as containerization, liability, and workers' safety provisions.
- Violation and penalties are prescribed for noncompliance of the proposed legislation/regulation requirements.

INFECTIOUS WASTE LEGISLATION/REGULATION

I. Definitions

A. Infectious waste shall mean and include the following:

1. Surgical waste - all materials discarded from surgical procedures and includes, but is not limited to, disposable gowns, soiled dressings, sponges, casts, lavage tubes, drainage sets, underpads and surgical gloves.

2. Pathological waste - all human tissues and anatomical parts which emanate from surgery, obstetrical procedures, autopsy, and laboratory. Such waste shall be exclusive of formaldehyde and other preservative agents.

3. Biological waste - excretions, exudates, secretions, suctionings, and other body fluids which cannot be directly discarded into a municipal sewer system.

4. Isolation waste - all waste emanating from the care or treatment of a patient on any type of isolation or precaution except reverse (protective) isolation.

5. All solid/liquid waste from renal dialysis.

6. All serums and vaccines not returned to the manufacturer or point of origin.

7. All laboratory waste which has come in contact with pathogenic organisms. Such waste includes, but is not limited to, culture dishes, devices used to transfer, inoculate and mix cultures, paper and cloth which has come in contact with specimens or cultures.

8. Animal carcasses exposed to pathogens in research, their bedding and other waste from such animals.

9. Sharps - any potentially infectious article

that may cause puncture or cuts. Such waste includes, but is not limited to, needles, IV tubing with needles attached, scalpel blades, broken glass, and syringes which may have come in contact with infectious agents during use in patient care or in medical research or have been removed from their original sterile containers.

10. Chemotherapy waste - all disposable materials which have come in contact with all cytotoxic/antineoplastic agents during the preparation, handling, and administration of such agents. Such waste includes, but is not limited to, masks, gloves, gowns, empty IV tubing bags and vials, and other contaminated materials.

B. Person - any individual, partnership, company, corporation, association, firm, organization, federal and state government, or any other group of individuals, or any officer or employee thereof.

C. Storage shall mean the containment of infectious waste in such a manner as not to constitute disposal of such waste.

D. Transport shall mean the movement of infectious waste from the point of generation to any intermediate points and finally to the point of ultimate disposal.

E. Treatment shall mean any method, technique, or process designed to change the character or composition of any infectious waste so as to either neutralize such waste or to render such waste potentially noninfectious.

F. Landfill shall mean a disposal facility or part of a facility where infectious waste is placed in or on land and which is not a treatment facility.

II. Requirements for Producers of Infectious Waste

All the requirements of this legislation shall apply, without regard to the quantity of infectious waste produced per month, to any producer of infectious waste to include, but not be limited to, the following categories:

General Acute Care Hospital
Skilled Nursing Facility or Convalescent Hospital
Intermediate Care Facility
In-Patient Care Facility for the Developmentally Disabled
Chronic Dialysis Clinic
Free Clinic
Community Clinic
Employee Clinic
Health Maintenance Organization (HMO)
Surgical Clinic
Urgent Care Clinic
Acute Psychiatric Hospital
Laboratory
Medical Buildings
Physicians Offices
Veterinarians
Home Health Agencies

III. Storage and Containment of Infectious Waste

A. Containment of infectious waste shall be in a manner and location which affords protection from animals, rain and wind, does not provide a breeding place or a food source for insects and rodents, and minimizes exposure to the public.

B. Infectious waste shall be segregated from other waste at the point of origin in the producing facility.

C. Unless approved by the local health officer or State Department of Health, infectious waste shall not be stored at a waste producing facility for more than four days above a temperature of 0° C (32° F). Containment of infectious waste at the producing facility is permitted at or below a temperature of 0° C (32°F) for a period of not more than 90 days without specific approval.

D. Containment of infectious waste shall be separate from other wastes. Enclosures or containers used for containment of infectious waste shall be so secured so as to deny access by unauthorized persons and shall be marked with prominent warning signs on, or adjacent to, the exterior of entry doors, gates, or lids. Each container shall be prominently labeled with a sign using language to be determined by the department and legible during daylight hours from a distance of 25 feet.

E. Infectious waste, except for sharps capable of puncturing or cutting shall be contained in double disposable plastic bags which are impervious to moisture and have a strength sufficient to preclude ripping, tearing, or bursting under normal conditions of usage. The bags shall be securely tied so as to prevent leakage or expulsion of solid or liquid wastes during storage, handling, or transport.

F. Infectious sharps shall be contained for disposal in leakproof, rigid, puncture-resistant containers which are taped closed or tightly lidded to preclude loss of the contents.

G. All bags used for containment and disposal of infectious waste shall be red in color and conspicuously labeled as required in section III D. Rigid containers of infectious sharps waste shall be labeled in the same way or placed in the disposable bags used for other infectious waste.

H. Compactors or grinders shall not be used to process infectious waste until after the waste has been rendered non-infectious. Infectious waste shall not be subject to compaction by any compacting device and shall not be placed for storage or transport in a portable or mobile trash compactor.

I. Infectious waste contained in disposable containers as prescribed above, shall be placed for storage, handling, or transport in disposable or reusable pails, cartons, drums, dumpsters, or portable bins. The containment system shall be leakproof, have tight-fitting covers and be kept clean and in good repair. The containers shall be of any color and shall be conspicuously labeled as required in section III D. on the lid and on the sides so as to be readily visible from any lateral direction when the container is upright.

J. Reusable containers for infectious waste shall be thoroughly washed and decontaminated each time they are emptied by a method specified by the Department of Health, unless the surfaces of the containers have been protected from contamination by disposable liners, bags, or other devices removed with the waste, as outlined in III, E.

Approved methods of decontamination include, but are not limited to, agitation to remove visible soil combined with one of the following procedures:

1. Exposure to hot water of at least (180°F) for a minimum of 15 seconds.

2. Exposure to a chemical sanitizer by rinsing with or immersion in one of the following for a minimum of 3 minutes:

   a. Hypochlorite solution (500 ppm available chlorine).
   b. Phenolic solution (500 ppm active agent).
   c. Iodoform solution (100 ppm available iodine).
   d. Quaternary ammonium solution (400 ppm active agent).

Reusable pails, drums, dumpsters or bins used for containment of infectious waste shall not be used for containment of waste to be disposed of as non-infectious waste or for other purposes except after being decontaminated by procedures as described in part (j) of this section.

K. Trash chutes shall not be used to transfer infectious waste between locations where it is contained.

IV. Treatment and Disposal of Infectious Waste

A. Treatment or disposal of infectious waste shall be by one of the following methods:

1) By incineration in a controlled-air multi-chambered incinerator which provides complete combustion of the waste to carbonized or mineralized ash.

Incinerators shall be capable of providing proper temperatures and residence time and shall be properly interlocked to ensure that optimum operating parameters are maintained. Emission shall be controlled by best available controlled technologies (BACT).

2) By sterilization by heating in a steam sterilizer, so as to render the waste non-infectious. Infectious waste so rendered non-infectious shall be disposable as nonhazardous waste provided it is not an otherwise hazardous waste. Operating procedures for steam sterilizers shall include, but not be limited to the following:

a. Adoption of standard written operating procedures for each steam sterilizer including time, temperature, pressure, type of waste, type of container(s), closure on container(s), pattern of loading, water content, and maximum load quantity.

b. Check of recording and/or indicating thermometers during each complete cycle to ensure the attainment of a temperature of 121° C (250° F) for one-half hour or longer, depending on quantity and density of the load, in order to achieve sterilization of the entire load. Thermometers shall be checked for calibration at least annually.

c. Use of heat sensitive tape or other device for each container that is processed to indicate the attainment of adequate sterilization conditions.

d. Use of the biological indicator Bacillus stearothermophilus placed at the center of a load processed under standard operating conditions at least monthly to confirm the attainment of adequate sterilization conditions.

e. Maintenance of records of procedures specified in (a), (b), and (d) above for period of not less than one year.

3. By discharge to the sewerage if the waste is liquid or semi-liquid, except as prohibited by the local health officer.

B. Cultures of viable etiologic agents shall be rendered noninfectious before disposal to land by heating the cultures in a steam sterilizer, by incineration or by another sterilization technique approved in writing by the Department.

C. Infectious wastes consisting of recognizable human anatomical remains shall be disposed of by incineration or interment, unless burial at a landfill is specifically approved by the Department because the waste contains a hazardous chemical. Infectious human fetal remains shall be disposed of by incineration or interment.

V. Transfer of Infectious Waste to Off-Site Treatment and Disposal Facilities

A. Any producer of infectious waste shall transfer custody of the waste only to a hauler who is registered as an infectious waste hauler by the Department.

B. Infectious waste shall be transported to an off-site treatment or disposal facility in a leakproof, fully enclosed container within a vehicle compartment.

C. Infectious waste shall not be transported in the same vehicle with other waste unless the infectious waste is separately contained as in "B" above or unless all of the waste is to be treated or disposed of as infectious waste in accordance with the requirements of this article.

D. Infectious waste shall not be stored off-site for more than twenty-four hours at ambient room temperature. Additionally, storage shall not exceed 96 hours at a temperature below 48° F or for 90 days at a temperature at or below 32° F.

E. Infectious waste shall be delivered for treatment or disposal only to a facility for which there is a valid and appropriate Infectious Waste Facility Permit.

F. Persons manually loading or unloading containers of infectious waste on or from transport vehicles shall be provided by their employer with, and required to wear, clean, protective gloves and uniforms. Other protective clothing, face shields and respirators may be required as deemed necessary by the Department.

G. Surfaces of transport vehicles that have contacted spilled or leaked infectious waste shall be decontaminated by procedures as described in Section III (j) of this Article.

H. Vehicles transporting infectious waste shall be identified on each side of the vehicle with the name or trademark of the hauler.

VI. Standards Applicable to Transporters of Infectious Waste

Application for Registration as an Infectious Waste Transporter

A. A person desiring registration as an infectious waste transporter shall submit to the Department each of the following:

1. A completed and signed application on forms provided by the Department. The forms shall contain both of the following:

a. A statement certifying that the applicant understands and will comply with the applicable requirements of this chapter, and

b. A list of all vehicles and containers. The vehicles listed must be registered to the applicant or under control of the applicant pursuant to a written lease or contract and included in applicant's required insurance coverage.

2. Proof of ability to provide adequate response in damages resulting from the operation of the person's business. For the purpose of this section, adequate response means protection against liability for the payment of damages.

3. A copy of the insurance policy, if insurance is the chosen financial alternative for the required coverage shall be maintained at the hauler's principal place of business.

4. A Certificate of Insurance, a bond of a licensed surety company, or evidence of qualification as a self-insurer, shall be provided to the Department which indicates that the minimum coverage has been obtained.

5. Proof that all trucks, trailers, semitrailors, vacuum tanks, cargo tanks and containers which are to be used by the applicant for transportation of infectious waste on highways and which are subject to the provisions of this chapter have passed an annual inspection by the Department of Transportation. Such proof may be submitted directly by the Department of Transportation.

6. Fees for registration as required and fees for inspection as required.

7. If previously registered, the applicant shall submit an application to the Department at least 45 days prior to the expiration date of the current registration.

B. Registration as an Infectious Waste Transporter shall expire one year from the date of issuance.

C. Any person who hauls or proposes to haul infectious waste on a highway shall do all of the following in order to ensure compliance with this chapter:

1. Allow the Department of Transportation to inspect jointly the person's trucks, trailers, semitrailers, vacuum tanks, cargo tanks and containers.

2. Make vehicles and containers available for inspection at a safe work location.

3. Allow the Department to inspect manifests, reports, permits, licenses, billing records and other documents related to the handling or hauling of infectious wastes.

4. Make available to the Department and the Department of Transportation when requested all records of inspection.

5. The Department of Transportation or the Department may require testing, under prescribed conditions, of trucks, trailers, semitrailers, vacuum tanks, cargo tanks or containers used to transport infectious wastes, in order to ensure compliance with this Chapter.

6. When so requested by the Department of Transportation or the Department, an infectious waste transporter shall, within a reasonable period of time, perform any or all of the following actions:

7. Remove infectious wastes or materials from the tank's containers, pipes, hoses or other appurtenances of a truck, trailer, semitrailer vacuum tank, cargo tank or container in order to make if safe to inspect.

8. Remove covers and take other steps necessary to allow inspection.

9. Present the manifest for the waste last held in each truck, trailer, semi-trailer, vacuum tank, cargo tank or container to be inspected.

10. Each infectious waste hauler shall arrange for an inspection by the Department of Transportation prior to expiration of any certification or date assigned for annual inspection.

11. All vehicles and containers requiring certificates of compliance and any attached equipment must be in sound condition and containers must be designed and maintained to properly contain infectious waste.

12. A certificate of compliance issued by the Department shall be placed on each truck, trailer, semitrailer, vacuum tank, cargo tank and container which has passed

inspection as required. The certificate shall be affixed on the front right-hand side of the truck, trailer, semitrailer, vacuum tank, cargo tank or container and shall be clearly visible. The certificate of compliance shall not be displayed unless the truck, trailer, semitrailer, vacuum tank, cargo tank or container has passed its annual inspection.

a. The certificate of compliance shall not be displayed by any person who is not registered with the Department of Transportation as an infectious waste transporter.

b. The certificate of compliance shall expire simultaneously with the expiration date of the infectious waste transporter registration, unless the Department determines in writing that a simultaneous expiration date would place an undue burden upon the applicant.

13. Registered infectious waste transporters shall notify the Department in writing within 30 days of the following occurrences:

   a. The transporter changes majority ownership, name, or location.

   b. Ownership or control of a vehicle or container certified by the Department is changed.

   c. A truck, trailer, semitrailer, vacuum tank, cargo tank, or container certified by the Department is involved in any spill, in an accident which renders or may have rendered the vehicle or container in noncompliance with the requirements of this chapter.

   d. A registered infectious waste transporter shall notify the Department in writing immediately upon notice of loss of the liability coverage. A transporter shall cease to transport infectious waste upon loss of liability coverage.

E. Infectious Waste Containers

1. Each truck, trailer, semitrailer, vacuum tank, cargo tank or container used for shipping infectious waste shall be so designed and constructed, and its contents so limited,

that under conditions normally incident to transportation, there shall be no release of infectious waste to the environment.

2. Any truck, trailer, semitrailer, vacuum tank, cargo tank or container used for shipping infectious waste shall be free from leaks and all discharge openings shall be securely closed during transportation.

VII. Requirements for Infectious Waste Treatment Storage and Disposal Facilities

A. Any person who operates a facility for the treatment storage or disposal of infectious waste shall have a valid and appropriate infectious waste management facility permit issued by the department.

B. The operator of any facility used for the treatment, storage or disposal of infectious waste shall have and shall adhere to an operation plan for the handling and disposal of infectious waste approved in writing by the department. The operation plan shall include the following requirements:

1. A method of receiving wastes which ensures that infectious wastes are handled separately from other waste until treatment or disposal is accomplished and which prevents unauthorized persons from having access to or contact with the waste.

2. A method of unloading and processing of infectious wastes which limits the number of persons handling the wastes and minimizes the possibility of exposure of employees and the public using or visiting the facility to infectious waste.

3. A method of decontaminating emptied reusable infectious waste containers, transport vehicles or facility equipment which are known or believed to be contaminated with infectious waste by the use of procedures as described.

4. The provision and required use of clean gloves and uniforms along with other protective clothing, face masks or respirators to provide protection of employees against exposure to infectious waste. Soiled protective gear shall be disposed of at the facility or decontaminated.

5. The means of decontamination of any person having had bodily contact with infectious waste while transporting the waste to the treatment or disposal site or while handling or disposing of the waste at the site.

6. A quantification of the maximum amount of infectious waste to be treated, stored, or disposed of per month.

C. A new or revised operation plan for treatment, storage or disposal of infectious waste shall be submitted for approval to the department whenever there is an increase of more than twenty-five percent in the maximum quantity of infectious waste receiving treatment, storage or disposal per year by the facility or when changes are otherwise made in an existing operation plan.

D. Approval for acceptance of infectious waste at a treatment, storage or disposal facility may be withdrawn by the department for noncompliance with the operation plan.

E. As a condition of approval for such permit, any person who operates a facility for the treatment, storage and disposal of infectious waste shall provide proof of liability insurance or other form of financial security in section VI A.4. to meet all responsibilities in case of release of such waste causing damage.

VIII. Violations and Penalties

A. Civil and administrative sanctions. Any person who violates any of the provisions of, or who fails to perform any duty imposed by the aforementioned requirements or any rule or regulation promulgated pursuant thereto, or any term or condition of any certificate or permit issued pursuant thereto, or any final determination or order made pursuant to this title shall be liable in the case of a first violation, for a civil penalty not to exceed ______________________ and an additional penalty of not more than ______________________ for each day during which such violation continues, and, in addition thereto, such person may be enjoined from continuing such violation and any permit or certificate issued to such person may be revoked or suspended or a pending renewal application denied. In the case of a second and any further violation, the liability shall be for a civil penalty not to exceed ______________________________ for each violation and an additional penalty not to exceed __________________________ for each day during which such violation continues.

B. Criminal sanctions. Any person who, having any of the culpable mental states shall violate any of the provisions of or who fails to perform any duty imposed by these regulations or any rules and regulations promulgated pursuant thereto, or any term or condition of any certificate or permit issued pursuant thereto, or any final determination or order made pursuant to this title shall be guilty of a misdemeanor and, upon conviction thereof, shall for a first conviction be punished by a fine not to exceed____________________________ per day of violation or by imprisonment for a term of not more than____________, or both such fine and imprisonment. If the conviction is for an offense committed after a first conviction of such person under this subdivision, punishment shall be by a fine not to exceed ________ ____________ per day of violation, or by imprisonment for not more than ________________ or by both such fine and imprisonment.

IX. Shipping Papers

A. The Department shall establish a system of shipping papers to to accompany shipments of infectious waste from the location where they are generated to the treatment facility and ultimately to the disposal site.

This system shall include but not be limited to the following:

1. The name and address of the generator.

2. A brief, general description of the nature of the wastes being shipped.

3. An indication of whether or not the wastes have been treated to render them non-infectious, if so, the method of treatment.

4. If the waste has been treated, the paper shall include the name and address of the treatment facility.

5. A method by which the person causing the transportation of a shipment of waste shall designate the off-site treatment or disposal facility, as appropriate, to which the transporter shall deliver the waste.

6. A certification by the person causing the waste to be transported that the waste is packaged and labeled in accordance with the rules adopted under this section; the description of the waste and statement or whether the waste has been treated is accurate; and, if the waste has been treated, that it has been treated in accordance with methods, techniques, and practices prescribed by rules adopted under this section.

B. No off-site treatment or disposal facility shall accept any infectious waste, treated or untreated, without and accompanying shipping paper.

NSWMA
National Solid Wastes Management Association

Statement of

Eugene J. Wingerter
Executive Director / Chief Executive Officer
National Solid Wastes Management Association

On Behalf Of The

Biomedical Waste Treatment Council
National Solid Wastes Management Association

Before The
House Committee on Small Business
Subcommittee on Regulation and Business Opportunities

Washington, D.C.
August 9, 1988

1730 Rhode Island Ave., NW Suite 1000 Washington, DC 20036 (202) 659-4613

Mr. Chairman, and members of the Subcommittee, my name is Gene Wingerter. I am Executive Director and Chief Executive Officer of the National Solid Wastes Management Association (NSWMA). I welcome the opportunity to discuss the views of the Biomedical Waste Treatment Council (BWTC) on the management of infectious waste.

Created in mid-1986, the Biomedical Waste Treatment Council is a component of our association that has been focusing on the problems of infectious wastes. The Council's initial emphasis was the occupational hazard of infectious disease that could result from the handling of biomedical waste or even general refuse. The 43 firms that are members of BWTC provide for the packaging, transportation, treatment and disposal of biomedical waste, and they represent 60 off-site treatment facilities.

Mr. Chairman, the Council believes that problems related to the handling of infectious wastes--as symbolized by the blood vials and other medical refuse that washed up onto New York and New Jersey beaches last month--warrant greater attention by the government, at both the Federal and state level. Specifically, I am here to make the following recommendations:

1. The U.S. Environmental Protection Agency should develop national standards for handling and disposing of infectious wastes, which will amount to a set of minimum requirements that must be met by all state programs.

2. Appropriate state agencies should establish a uniform system of documentation to accompany shipments of infectious wastes, to identify their source, their make-up, and other details needed by those who handle and dispose of the wastes.

3. Regulations should recognize the differences between infectious wastes and general "hazardous wastes," as defined in Federal legislation, and establish a new classification that acknowledges those differences.

Our Council believes that improvements in the handling of infectious wastes can be made within the bounds of the country's cost-containment objectives for medical care. By establishing uniform standards on a national and state basis, greater control and a greater degree of safety can be achieved in the generation, handling and disposal of infectious wastes--without adding unnecessarily to the cost of health care.

Background: The Infectious Waste Problem

Though we in the industry responsible for handling and disposing of infectious waste have been concerned about its potential problems for some time, the issue has come to national public attention largely within the past year. One milestone for public awareness occurred in 1987 when a dozen children in Indiana found vials of contaminated blood and syringes in a trash bin outside a health clinic. They played with the vials, as children would do, and as a result were potentially exposed to AIDS. This spring, during the annual clean-up of Texas beaches, vials of blood and syringes were found along the Gulf Coast.

Last month, the problem of infectious wastes became a Page 1 issue nationally, and it became a serious health and economic concern for several specific areas of the country. When wastes washed ashore along the Atlantic Coast, several of the country's most attractive and popular beaches were affected. Some of them had to close at the very time that they are most in demand, on the Fourth of July holiday weekend. Let me remind you of what we have experienced just in the past few weeks:

- On July 3, in Bayonne, New Jersey, 100 vials containing blood washed ashore from Newark Bay.
- On July 3 and 4--again, the holiday weekend--medical wastes washed up onto Ortley Beach and Berkeley in New Jersey.
- On July 6, more than 15 miles of beaches on Long Island in New York had to be closed when a wave of sewage, syringes, blood vials and infectious hospital wastes washed ashore.
- On July 7, ten miles of beaches on the western tip of Fire Island in New York had to be closed by similar infectious debris washing ashore.
- On July 20, the infectious waste problem spread northward. Medical wastes were discovered on beaches in Martha's Vineyard, Edgartown, and Rhode Island.

The Potential Hazards of Infectious Waste

These dramatic incidents have catapulted the issue of infectious wastes to public and political attention. The concern of our Council runs even deeper--to constant hazards that do not attract this level of media and political interest. Our members are concerned about infectious wastes because they are the people who handle it, who ship it, and who dispose of it. We are acutely aware of the potential for occupational hazards. American health care workers alone accidentally stick themselves with needles an estimated 2,200 times a day. These types of injuries are also common among workers who handle infectious wastes.

Our concern is not just with AIDS or other dramatic or exotic diseases. Infectious wastes are more likely to carry diseases that are less sensational, but nevertheless serious. For example, the Centers for Disease Control estimate that 200,000 new cases of Hepatitis B occur every year in the United States, and that 10 percent of those infected become "chronic carriers" of the virus. About 10,000 people with these infections are hospitalized each year. This virus is easily transmitted by discarded needles, which alone would make them a potential hazard to waste handlers as well as to children playing around refuse bins where such needles have been discarded.

Meanwhile, the volume of infectious waste is growing. The largest generators of infectious wastes are primary health care facilities. They discard an estimated 16 pounds of solid waste per occupied bed per day. Until recently, about 10 percent of this total was managed as infectious wastes. But health care facilities have begun applying what is known as "universal precautions," under which special safeguards are applied to all products that come into contact with blood or bodily fluids. As a result, the percentage of hospital waste that needs to be managed as infectious waste has increased to the range of 30 to 40 percent.

The potential hazards of the waste become greater when it is not properly handled, treated or labeled. It is critical that infectious waste be separated and properly contained at the source, to minimize the risk to health care and refuse workers. Problems arise when infectious waste is co-mingled with regular refuse. As the report from the New York City Environmental Control Board last week showed, that practice is not uncommon: it found that more than half the city's hospitals have been co-mingling infectious waste with regular trash. If this occurs, it is impossible to distinguish between waste that is "safe" and waste that is "unsafe."

Our industry is very concerned. Many members, faced with the uncertainties of co-mingled wastes, have refused to receive any hospital waste until this situation is corrected.

In addition to improper handling, another problem involves improper treatment. Waste that has been treated at an incinerator may remain dangerous if the incinerator does not achieve temperatures high enough to destroy infectious organisms. Similarly, attempts to sterilize wastes through the heat process called autoclaving can be incomplete, if the wastes are not exposed to sufficiently high temperatures for an adequate period of time.

State Regulatory and Legislative Trends

For all these reasons, state legislatures and regulatory agencies have been turning their attention to infectious waste. Since 1986 NSWMA has conducted an annual survey of infectious waste regulations throughout the 50 states and the District of Columbia. In addition, last February the Council of State Governments released a special survey of state regulatory programs related to infectious wastes. It found that 44 states are now, or soon will be, regulating infectious waste. While a high percentage of states have some control strategy in place, these guidelines and regulations are by no means uniform. The programs vary widely in their definition of the waste stream, in the regulation of transporters and in their standards for on-site management. Seventy percent of the country's primary health care facilities manage infectious wastes on-site, yet some states--notably New York, Missouri, and Ohio--have totally exempted these facilities from their permitting requirements.

States without a biomedical waste program are at least studying the issue, and states with existing management controls are reviewing their adequacy. Because of our concern, BWTC has been involved in helping shape legislative and regulatory proposals in several states this year, notably Ohio, Indiana, Missouri, New Jersey and New York. The Council is now assisting several states in a review of their current programs--namely Minnesota, Oregon, Texas and Alabama. We are also beginning an assistance effort in Delaware and Michigan.

The Council's Position on the Role of the States

One of the most important criteria for an improved infectious waste management program is a high degree of uniformity across the country. Shippers, treatment centers and disposal operators need to be assured of regulatory certainty so that additional capacity can be developed. If individual states develop requirements for packaging, treating, labeling and even defining infectious wastes that vary considerably from one another, the result will be not only a higher cost for our health-care system; it will also mean greater confusion in the shipment and handling of waste, and greater chance for misunderstanding and mistakes.

In the absence of Federal requirements, the Biomedical Waste Treatment Council has developed a model state regulatory program to provide a uniform framework for the management of infectious waste. The Council worked on this model project for 15 months and adopted it in February. The model offers a system of management controls to provide for proper identification, packaging, storage, transportation, and treatment for infectious waste. Our system is intended to encourage safe and efficient management of infectious waste within health care institutions, and to reduce the risk of punctures and disease transmission for refuse workers. A copy of our model rule is available from BWTC.

The Biomedical Waste Treatment Council, through its member companies and staff, stands ready to assist states in designing and implementing management programs that will reduce the risk of exposure to infectious waste. The Council believes that uniform state programs are essential, if we want to assure the public that infectious waste is being managed with a high level of quality, safety and environmental protection.

The Council's Position on the Federal Role

EPA's current guidelines for managing infectious waste are inadequate for the problems we face. The Council believes that Congress should foster a unified national program by reclassifying "infectious waste" as a new category of waste--different from those classified generally as "hazardous"--and by requiring EPA to establish a regulatory program. The EPA standards should serve as a minimum--a "floor"--for state programs, and should provide the consistency of definition and approach that can make a national effort manageable.

Specifically, the Council offers two recommendations for Congressional action:

(1) Amend Section 1004(5) of the Resource Conservation and Recovery Act (RCRA) by deleting the phrase "infectious characteristics" from the definition of hazardous waste.

BWTC agrees that infectious waste must not be managed and handled like regular solid waste. But neither should it be categorized as "hazardous waste" under that legislation's definition, because it presents a different form of hazard. It is not ignitable, corrosive, reactive or toxic. For infectious waste, a separate approach is needed. The Council of State Governments recognized this logic. Its report concluded: "The current trend is to delete infectious waste from state's hazardous waste programs and create either a special waste category or to include these waste under the state's nonhazardous waste regulations."

(2) Create within RCRA a new subtitle related specifically to the management of infectious waste. At a minimum, this section should include:

- An explicit and comprehensive definition of the term "infectious/biomedical waste." A common definition of the material to be managed as "infectious" is essential for any uniform national program. Allowing individual infectious control officers at hospitals to judge what is infectious and what is not will lead to inconsistencies, misunderstandings, and at best, a spotty implementation of a national management system.

- A prohibition against exempting any generators from regulation, even small-quantity generators. The materials we are discussing can transmit diseases even in very small volumes. The Council believes that the only volume that can be exempted is "zero."

- A prohibition against any disposal of infectious waste without prior treatment. Increasingly, workers are refusing to handle infectious wastes that have not been certified as having been treated. Society as a whole should not allow the disposal of such waste.

- A mandate for EPA to develop a national regulatory program with specific minimum requirements. The basic objective of this program should be to create a regulatory "floor" that would lead to a uniform approach to the management of infectious waste in every state in the country.

One important element of EPA's effort must involve setting minimum requirements for shipping paper control. Confidence in the system of management of infectious waste ultimately depends on the "paper trail" of documentation. Detailed information must be provided by the original generator of the waste, the transporter, the treatment operator, and the disposal site operator. Our member companies have begun their own documentation systems to provide for shipping paper control during storage and transportation, and to provide assurance of proper treatment and disposal. EPA should develop a standard national system of documentation for infectious waste.

Based on the Council's work on shipping paper control, we believe that documentation of infectious waste should include the following elements:

(1) The name of the producer and the address of the facility where the waste was created.

(2) A general description of the nature of the waste.

(3) An indication as to whether the wastes have been treated to make them non-infectious and, if so, the method of treatment.

(4) If the waste has been treated, the name of the owner or operator of the treatment facility and its address.

(5) The destination of the waste.

(6) A certification, by the person who requested that the waste be shipped, that all of this information is accurate and that the packaging and treatment have been done in accordance with all regulations.

The Council believes that no shipping paper is necessary when waste is transported to a treatment facility owned and operated by the generator, as long as the generator then prepares appropriate documentation certifying that treatment has taken place. This documentation must then accompany the waste to any disposal facility. Otherwise we believe that no off-site treatment or disposal facility should accept any infectious waste--treated or untreated--without an accompanying shipping paper.

Conclusion

The Biomedical Waste Treatment Council believes that there is a need for additional legislation and regulation related to the management of infectious waste in the United States. In particular, the Council urges that the Federal government establish a uniform national program of standards that would serve as a minimum for states to adopt and enforce. We believe our proposals would lead to a balance between the protection of the health of waste handlers and the general public, and the national need to contain the cost of health care.

Mr. Chairman, the Council would be pleased to provide additional information to any parts of the legislative or regulatory processes as they evolve. And on the Council's behalf, I appreciate the opportunity to present these comments for your consideration.

STATEMENT OF
JEFFREY D. DENIT
DEPUTY DIRECTOR FOR THE OFFICE OF SOLID WASTE
U.S. ENVIRONMENTAL PROTECTION AGNECY
BEFORE THE
SUBCOMMITTEE ON REGULATION AND BUSINESS OPPORTUNITIES
OF THE
COMMITTEE ON SMALL BUSINESS
HOUSE OF REPRESENTATIVES

AUGUST 9, 1988

Mr. Chairman and members of the Subcommittee, I am Jeffrey Denit, Deputy Director for the Office of Solid Waste I am accompanied by Devereaux Barnes, Director of the Characterization and Assessment Division (CAD) Lisa Friedman, from the Office of General Counsel. I appreciate the opportunity to be here today to discuss the Agency's current initiatives for better management of infectious waste and describe the methods prescribed by EPA for infectious waste management.

OVERVIEW

The recent outrageous incidents where floating debris and medical waste have washed up on our beaches, contributing to numerous beach closings, have again focused public attention to the nation's waste management problems. We share your concerns about the proper management of municipal solid waste and in particular medical waste. Municipal solid waste management has emerged rapidly as a major national issue. We, as a nation, produce more and more garbage; about 150 million tons per year. It is estimated that acute care hospitals generate 3.2 million tons of medical waste per year. EPA estimates that 10 to 15 percent of hospital waste is infectious.

The current washing up of floatables could be due to a number of sources: some alleged instances of illegal disposal; combined sewer overflow; stormwater runoff; beach litter, legitimate home users of syringes such as diabetics and illegal drug users; and the general inadequate handling of solid wastes at landfills and coastal transfer facilities. The problems illustrate how despite major efforts to clean up the oceans--billions for Sewage Treatment Plant construction, major control of industrial discharges, and the phasing down of permitted ocean dumping--it is still not enough in the face of the explosive development and growth along our nation's coastline. Today it is estimated that seventy percent of our population now lives within 60 miles of a coastline. The solid waste situation is aggravated by increased use of plastic disposables by all consumers including the medical profession, and a near crisis in availability and cost of solid and infectious waste disposal options. The solution requires effort by all levels of government and by individual citizens who must become more aware of their own solid waste generation and disposal practices. We need to ensure that all wastes are properly managed to protect human health and the integrity of the environment.

Because of time constraints, I will limit my remarks today to medical wastes and more specifically on the portion of medical wastes which may be infectious.

RISK ASSOCIATED WITH INFECTIOUS WASTE

Medical wastes include a variety of wastes such as packaging (wrappers from bandages and catheters), containers (IV bags, empty vials) disposable items (tongue depressors, thermometer covers) and, infectious wastes (blood, tissue, sharps, cultures and stocks of infectious agents). While hospitals, clinics and health care facilities may generate the vast majority of these wastes, medical wastes including those that are infectious are also generated by private practices, home health care, veterinary clinics, and blood banks. Thus, this problem and concern for the proper treatment and disposal of infectious waste cannot be resolved easily as there are numerous generators, many of which produce only small quantities.

EPA presently identifies six types of waste as potentially infectious. These include: (1) cultures and stocks of infectious agents and associated biologicals; (2) pathological wastes; (3) human blood and blood products; (4) contaminated sharps; (5) contaminated animal carcasses, body parts and bedding; and (6) isolation waste (as defined by CDC).

While concern has been expressed as to their hazard, several studies that we would be glad to provide to this committee, have shown that hospital wastes are generally less virulent than typical domestic waste. In addition, the Centers for Disease Control (CDC) have no epidemiological evidence to suggest that hospital waste is any more infectious than residential waste or that hospital waste has caused disease in the community as a result of improper disposal.

Exposures to infectious wastes that could result in disease transmission are more likely to occur in those occupational settings that generate, transport, store, treat or dispose of these wastes. Therefore, the education of those who generate, transport, and dispose of infectious wastes, we believe, may be the key to reducing any potential risks from these wastes. We are continuing to investigate these concerns to make certain our conclusions are accurate.

EPA's INFECTIOUS WASTE MANAGEMENT PROGRAM

EPA's role in the past has been one of providing guidance, assistance, and education. Our involvement with infectious waste since 1980 is highlighted in a chart attached as the last page of my testimony. I would like to discuss three of the more important actions taken by EPA during the past several years.

The "EPA Guide for Infectious Waste Management" published in May 1986, outlines the EPA perspective on environmentally acceptable techniques for managing infectious wastes. Topics covered include a working definition of infectious waste, the various categories of waste included under the definition, and recommended practices for packaging, transportation, treatment, storage, and disposal of these wastes. The document provides guidance to persons responsible for infectious waste management. State and local regulatory agencies have found and continue to find this manual useful as resource material.

In November of 1987, as a result of several incidents of improper management and disposal of infectious wastes and growing public concern about the potential threat of infectious waste, the Agency called together a panel of experts to discuss the definition, proper management, and risks posed by infectious wastes. The meeting was held to evaluate EPA's past role in infectious waste management and to assist EPA in determining whether the Agency should undertake any additional action under the Resource Conservation and Recovery Act. The proceedings of this meeting have been made available to the public. The consensus of the panel was that the risks posed by infectious wastes were primarily occupational, that incidents of public exposure to infectious wastes were isolated, that EPA should deal with the situation through guidance and public education, and that EPA should issue regulations only if guidance and education failed to correct the problems associated with infectious waste management.

Most recently in a further effort to share available information on infectious wastes and their management and to obtain the views of all interested parties, we published a Federal Register notice on June 2, 1988, seeking comment on a number of issues related to infectious wastes. These include: (1) an appropriate definition for infectious waste, (2) an identification of the full range of problems and risks posed by infectious waste, (3) the appropriate role for EPA in managing infectious waste, (4) the appropriateness of requiring tracking systems for infectious wastes, and (5) whether certain infectious waste generators should be exempt if regulations were issued. The comment period for the Federal Register notice closed on August 1 and we have not had time to prepare a complete summary of all comments received. We will forward a copy of the summary as soon as it is completed.

As of Thursday, July 28, 34 comments had been received from trade associations, hospital groups, state and local health departments and interested individuals. Our initial review of the comments received suggest the following. While the majority of commenters agreed with EPA's definition of infectious waste, several commenters suggested that differences in the definition between EPA and CDC should be resolved. There was no evidence presented by any commenters suggesting that properly handled and disposed infectious waste posed a public health problem. The majority of respondents agreed that workers in health care facilities, transporters of infectious waste, and workers at disposal sites run the greatest risk of exposure. There was some concern expressed that EPA should develop a model program to prevent excessive regulation at the local level. With regard to tracking systems, it was suggested that tracking should be administered at the State level, however, most commenters felt that the existing RCRA manifest system (Uniform Hazardous Waste Manifest) was too complicated. There was mixed response on whether or not small quantity generators should be exempted from any infectious waste control program.

RECENT INCIDENTS AND ACTIVITIES IN NEW YORK AND NEW JERSEY

I would like to take a moment to discuss the special situation in New York, New Jersey and recently in Rhode Island. Finding wastes on our beaches, including medical wastes is frightening, and is inconsistent with EPA's goals of protecting the integrity of the environment. As noted previously, the current washup of municipal waste including medical wastes are probably due to a number of sources, the first and most important of which are alleged instances of illegal dumping.

EPA is directing its activities in four specific directions which I will briefly discuss here.

- Compliance Monitoring and Enforcement

  We have stepped up our already aggressive monitoring and enforcement programs under the Marine Protection Research and Sanctuaries Act and the Clean Water Act. We are working closely with other Federal, State, and local authorities on surveillance activities and investigations.

- Direct Assistance

  We are providing direct technical assistance to States that have recently experienced infectious waste mismanagement incidents. We held a series of meetings with New York State, New Jersey, and New York City to encourage a coordinated, uniform and consistant interstate approach to infectious waste tracking pursuant to existing State emergency regulations. The emergency regulations include a four part manifest-like system for all generators of 100 kg per month or more.

EPA also convened a conference under the National Estuary Program to facilitate joint efforts between the States to address infectious waste problems.

- Education and Guidance

  EPA's principal source for information on infectious waste management is our guidance document. However, we are also preparing brochures, posters, and a bibliography of abstracts of infectious waste studies. We are also preparing guidance materials to assist States in implementing infectious waste management programs under existing municipal solid waste authorities.

- Research

  We have issued a contract to monitor discharge of solid wastes from combined sewer overflows inupper New Jersey and New York. Although the study is not yet completed, few infectious wastes have been found to date. EPA initiated the NY Bight restoration project to review pollutants and impacts on aquatic habitat and define methods for remediation. We are initiating a study on the impacts of plastic pollution as required by Section 2202 of the Marine Plastic Pollution andControl Act of 1987.

The Agency supports the soon to be announced implementation of a tracking system within the States of New York and New

Jersey under their respective emergency authorities as an intelligent first step to focus attention on this issue.

FUTURE DIRECTIONS

With potential legislative action pending for EPA involvement in infectious waste management, the necessity for EPA's involvement should be evaluated from the perspective of both the nature and degree of risk associated with infectious wastes. Education is the common denominator in resolving many of the pending issues. In an effort to better understand the risks, sources, and programs in place to control infectious waste, EPA has:

- Initiated an evaluation of existing State programs and their effectiveness in controlling the management of infectious waste,
- Established a Solid Waste Task Force to develop a comprehensive national strategy for the municipal solid waste problem. Their goals include increasing the amount of waste that is recycled and ensuring that all solid waste including medical waste is managed in a responsible manner,
- EPA is developing a training manual for operators of hospital incinerators and an air compliance inspection manual,
- EPA will consider regulations only if education and guidance fail to improve current management practices.

CONCLUSIONS

EPA's ongoing educational and technical assistance efforts should be sufficient to resolve these issues. Since these problems currently exist and since they appear to require education in their resolution, we will direct our initial efforts at providing the direction and information needed through the development of guidance documents. Educational materials for generators of infectious waste and sanitation workers who haul, store, transfer, treat or dispose of infectious wastes, should significantly assist in minimizing exposures to infectious wastes. The development and dissemination of educational materials can proceed more quickly than regulation promulgation. If educational efforts and guidance to states fail to solve the problem, regulations can be promulgated.

We all agree that good management of infectious waste is important and I will continue to count infectious waste management among my highest priorities. We all share the same concerns that solid waste, including infectious waste must be managed properly and that our near coastal waters and beaches must not be dumping grounds. The Agency is fully committed to using Section 7003 and other appropriate authorities to the fullest extent possible under RCRA or other environmental statutes when illegal disposal or dumping activities occur. I look forward to working with all concerned to effect responsible solid waste management practices.

This concludes my prepared statement, Mr. Chairman. My colleagues and I will be happy to answer any questions you may have.

NSWMA

National Solid Wastes Management Association

August 29, 1988

Honorable Ron Wyden
1406 Longworth House Office Building
U.S. House of Representatives
Washington, DC 20515-3703

Dear Congressman Wyden:

On behalf of the National Solid Wastes Management Association (NSWMA) and our Executive Director Eugene Wingerter, I thank you for the opportunity given NSWMA to testify before the House Small Business Committee's Regulation and Business Opportunities Subcommittee on August 9th, 1988.

As discussed with your staff, I have enclosed a letter to you from Wayne Trewhitt, an NSWMA member in Portland, Oregon, whose workers have had numerous mishaps in finding medical waste co-mingled with common household garbage. We ask that this letter be made a part of the record of the August 9th hearing.

We look forward to working with you in addressing strategies for the proper management of biomedical wastes and other matters of mutual interest.

Sincerely,

Charlotte M. Wilmer

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Director, Federal Relations

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WASTECH

August 18, 1988

The Honorable Ron Wyden
1406 Longworth House Office Building
House of Representatives
Washington, D.C. 20515

Dear Congressman Wyden,

As an officer of the National Solid Wastes Management Association (NSWMA), I was extremely encouraged by your recent hearing on infectious waste, which addresses a very significant problem for members of the waste disposal industry. With your permission, I would like to submit this letter for the record and describe several recent experiences which underscore my support for federal actions.

As president of Wastech Inc., I operate four waste management/transfer and recycling facilities. Two in Metro Portland area are the Clackamas Transfer and Recycling Center in Oregon City and the Oregon Processing and Recovery Center in north Portland, which is the largest full-line recycling operation in the State of Oregon. Until recently, the transfer station in Oregon City periodically received red bags of infectious hospital wastes co-mingled with other trash. Our frustration reached a climax when we noticed that about one-third of a particularly large shipment involved such material. This material included needles and other "sharps" packaged in PVC rigid plastic containers which broke open upon compacting. None of the hospital waste seemed to have been treated and had simply been thrown in with other trash to end up who knows where.

A few days later, this same incident was repeated, prompting me to contact local and regional authorities who claimed there was nothing they could do to prevent such waste from being discarded at our facility. After discussing the problem with local refuse haulers, we met with hospital officials who were initially unwilling to change their practices. It was only after we proposed to turn this matter over to the news media that they agreed to contract directly with an infectious waste disposal operator.

WASTECH INC. 701 N. Hunt Street, Portland, Oregon 97217 503/285-5261

What I find particularly disturbing about this episode is that my company and local waste hauling firms had to take on the role of regulators to get the job done right. Because there was no local, county or state agency setting standards for infectious waste disposal, we had to impose our own rules--not just to protect our workers' health, but to protect public health as well. We are happy to preform a public service, but we also believe that EPA and our state officials have apparently not lived up to their responsibilities.

The second series of incidents occurred at Wastech's recycling facility in Portland, where we process trash that is picked up primarily from stores and other commercial buildings. Many of these buildings house the offices of so-called "small generators", doctors' offices, medical labs and clinics, which also discard infectious waste.

As you know, recycling is a labor-intensive effort. Wastech workers must reach into the trash as it passes them on a conveyor belt and remove whatever cannot be reused. On several occasions, they have encountered needles, syringes and even packets of blood. This is an intolerable situation, and one which I have still been unable to resolve. We are therefore, unable to continue accepting loads for recycling when there is a possibility that infectious waste may be present.

Two other incidents reinforce the need for regulatory action. The first occurred recently at another Wastech transfer station in the Northwest. In this case, a baler operator compacting mixed refuse was drenched by a gusher of blood that came streaming out of the trash. In the second instance, one of my employees became ill and could not return to work for two days after three feet of intestines and other body parts fell out of waste being prepared for compaction.

Based on these experiences, I would urge you and your colleagues to enact legislation that focuses on three specific goals:

- establishing minimum federal standards to regulate the treatment and disposal of infectious wastes.
- firmly distinguishing between infectious wastes and general hazardous wastes, and creating a new classification in RCRA to acknowledge that difference.
- encouraging state officials to develop a uniform tracking systems for infectious wastes so that treatment and disposal operators receive all of the information they need to follow appropriate procedures.

With these measures in place, I believe that we will have made a good start in addressing the problem of infectious waste treatment and disposal. And we will have taken appropriate steps to keep potentially contaminated materials out of the everyday solid waste stream.

Please let me know if we can provide additional information about this important issue. I would be grateful for the opportunity to discuss it further with you, and would also like very much to invite you and your staff to visit our recycling facility in Portland whenever you are available. We are anxious to show you first-hand how such a center operates and the contribution that it can make in reducing our region's solid waste problem. We are specially proud of our success in recovering and marketing post consumer plastic from the waste stream.

Sincerely,

Wayne D Trewhitt

Wayne D. Trewhitt
President

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